Federated Identity:

What is Federation?
How does it work?
Why is it secure?

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Large Facilities Workshop - Tucson, AZ

Agenda for Today

- Establish a common vocabulary
- What are the business needs?
- What is InCommon?
- What is “Federation”?
- How does it work?
  - Why is it more secure?
- What does it mean for the research community and NSF?

If we have time…

- What’s happening with the research community and Federal eAuth?

Some terminology…

What is identity management?

- Organization: The policies, processes, and tools used to "assure" that IT systems and applications are made available only to appropriate persons
- Individual: The persons I am working with and the systems I am using really are who/what they say they are. And no one can impersonate me, or read or change my information
- Identity Management has greatly increased in importance as IT systems and applications are used to perform more and more of the work of society and commerce
- Today, NSF requires an NSF ID and password to access FastLane and Research.gov

-G. Strawn

What is federated identity?

- “Federated identity management allows users to log in using their local authentication credentials (username and password assigned by their institution) to access electronic resources hosted at other institutions belonging to the same identity federation.” (www.incommonfederation.org)

- Designed to address:
  - multiple passwords required for multiple applications
  - scaling the account management of multiple applications
  - security issues associated with accessing third-party services
  - privacy
  - interoperability within and across organizational boundaries

“Identity Providers”

- End user organizations act as ‘identity providers’ (IdPs) and optionally ‘service providers’ (SPs defined on next slide)
- Identity providers (IdPs) supply user information
  - Universities
  - NSF should be the IdP for its employees
- Benefits
  - Enhances security
    - IdP controls what information is shared
    - Users need to remember only one username and password
  - Users and organizations are responsible for their own information
  - Ease of use

“Service Providers”

- Service Providers (SPs) “consume the IdP’s information and get access to secure content in order to provide the appropriate access to services
- Benefits
  - No need to maintain your own user database
    - Authentication is performed by the IdP
    - Can authorize per institution, role, and/or entitlement
  - Reduced user support requirements
  - Reduced compliance burden
    - Less storage/processing of personal data
  - Accurate implementation of license conditions
  - Users take better care of credentials
  - Organizations take better care of assertions

Authentication vs. Authorization

- Authentication: the process of verifying that you
- Authorization: the process of verifying that an authenticated person has the authority to perform a certain operation
- Authentication must precede authorization

Levels of Assurance

- OMB M04-04: e-Authentication Guidance for Federal Agencies (http://www.whitehouse.gov/omb/memoranda/fy04/m04-04.pdf)
- NIST Special Publication 800-63-1: Electronic Authentication Guideline (http://csrc.nist.gov/publications/drafts/800-63-rev1/SP800-63-Rev1_Dec2008.pdf)
- Electronic Risk and Requirements Assessment (e-RA) Tool (http://www.cio.gov/eauthentication/drilldown_ea.cfm?action=ea_era

Short Summary of the Asserted Identity’s Validity

Level of Assurance

- Level 1: Little or no confidence
- Level 2: Some confidence
- Level 3: High confidence
- Level 4: Very high confidence

It’s About Trust…

Shibboleth Shibboleth.

- Shib what?
- Techniques and software developed as part of NSF Middleware Initiative (CISE/NMI)
- Standards based, open source software package for web single sign-on across or within organizational boundaries
- Neither an authentication or authorization system
- Secure exchange of messages between two parties (Identity Provider and Service Provider)
- Authentication handled by institution/LA/RBC (devolved authentication)
- Authorization achieved by an exchange of attributes (such as ‘member of an institution’)
- Providers need to sign up to a ‘trust’ agreement
- Vendor solutions (Oracle, Sun, CA/Netegrity…)
- An implementation of SAML (Security Assertion Mark-Up Language)

SAML

- SAM who?
- *Security* Assertion MarkupLan guage (SAML)
  - Used for exchanging authentication and authorization data between security domains, that is, between an *identity provider* (a producer of assertions) and a *service provider* (a consumer of assertions)
  - XML-based standard
- OASIS SAML http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=security
- Open SAML 2.0 now available
  - Already heavily used by Verisign, Tata, etc.

- NSF is using SAML 1.01
- Federations are migrating to SAML 2.0
- Action item for NSF: migrate to SAML 2.0

http://en.wikipedia.org/wiki/Saml

What are the business needs?

The Changing Environment

- Many more services require authentication
  - At work
    - Travel
    - Emergency Alerts
    - HR-related
    - Training
    - Benefits
    - Professional organizations
  - At home
    - Shopping (Lands End, Amazon, eBay, airlines…)
    - Google Email/Apps, Yahoo, AOL…
    - Social networking: Facebook, LinkedIn, Twitter, MySpace…
    - Financial management: Banking, credit cards, investment, bill paying

The Changing Environment (more)

- Many more services require authentication
  - At school/university
    - Scholarship is done via the net
    - Access needed within the institution
      - Library, food services, HR, registration…
    - Access needed outside the institution…
      - Collaboration is worldwide
      - State agencies
      - Federal agencies

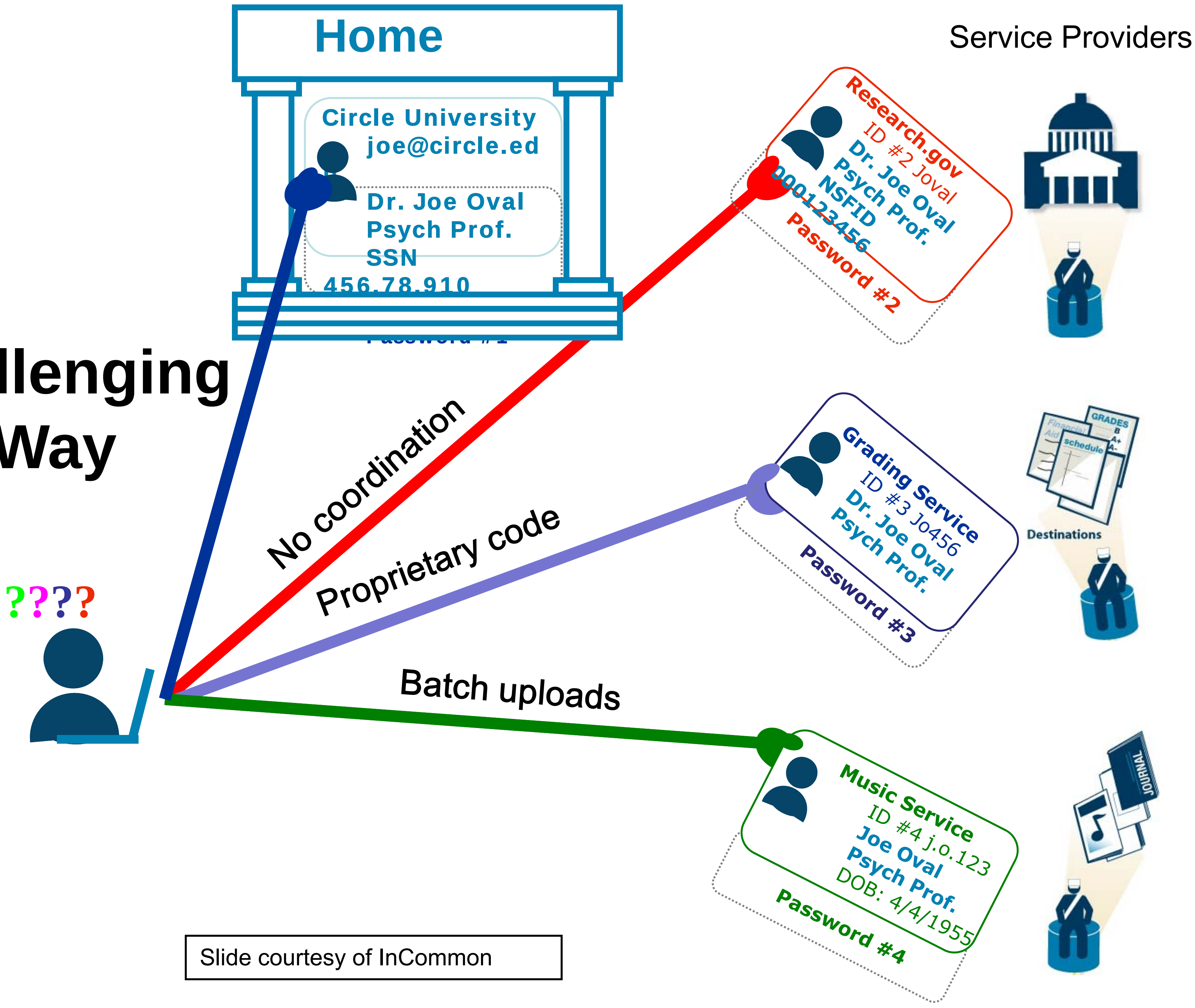
The Challenge….

- More and more services
- More and more “trusted” partners
- Dependent on assertion of “eligibility”
  - Various criteria and representations
  - Who can assert “student-ness” ? “research-ness”?
- More Personal Identifying Information (PII) --> less personal privacy AND a higher level of service
  - Varying levels of assurance required
- Anonymity sometimes required
- Broader constituencies to worry about

What problems are we trying to solve?

- Reduce the need for multiple usernames and passwords
- Reduce amount of personal data held by third parties
- Reduce the duplication of effort across multiple
- Enable publishers, service and network providers to have a common interface for multiple systems
- Ease the difficulty in sharing resources between institutions and organizations
- Make revocation of access/services easier

Challenging Way



Home

Circle University
joe@circle.ed

Dr. Joe Oval
Psych Prof.
SSN
456.78.910
Password #1

Service Providers

Research.gov
ID #2 Joval
Dr. Joe Oval
Psych Prof.
NSFID
000123456
Password #2

Grading Service
ID #3 Jo456
Dr. Joe Oval
Psych Prof.
Password #3

Music Service
ID #4 j.o.123
Joe Oval
Psych Prof.
DOB: 4/4/1955
Password #4

????

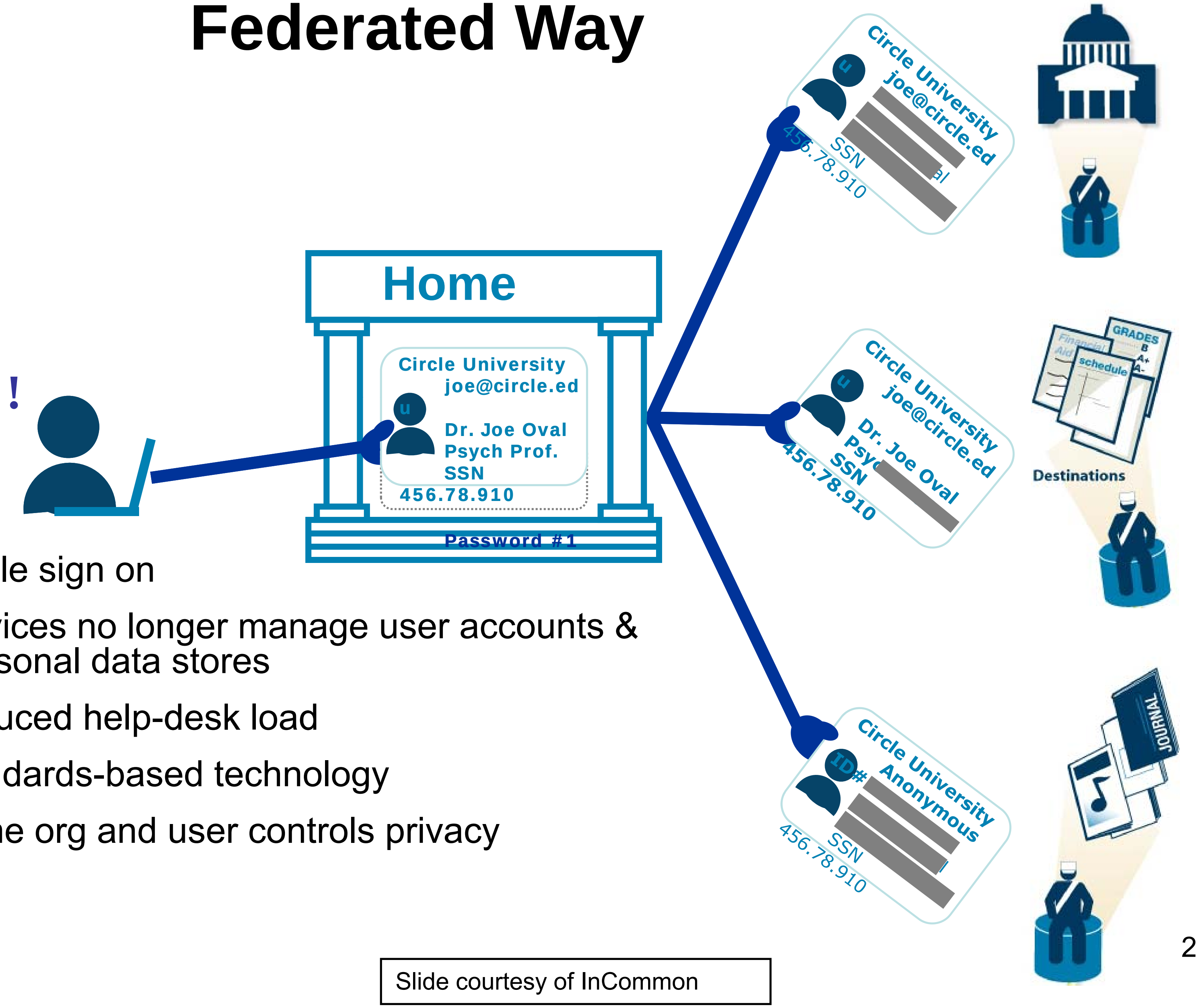
No coordination

Proprietary code

Batch uploads

Slide courtesy of InCommon

Federated Way



1. Single sign on
2. Services no longer manage user accounts & personal data stores
3. Reduced help-desk load
4. Standards-based technology
5. Home org and user controls privacy

Slide courtesy of InCommon

Why does the community want this?

- It's easier
  - Researchers
    - One username and password to remember (single sign on) for multiple campus applications, access to NIH and NSF and …
    - Ability to use same credentials with other agencies
      - NIH is already accepting InCommon credentials for several external application
    - More control over their own information
  - SPOs
    - After initial authorization, won't have to retrieve NSF IDs for researchers
- Enhances security
  - Eliminates a lot of "middle people"
- Often-requested new feature for Research.gov

What is the value to the “institution”?

- One solution for intra- and inter-domain single-sign on
- Ability to manage access control by groups or for roles
- Allows personalization of services without releasing identity
- Once implemented, extensions to other applications are much easier
  - Just manage attributes that are released to new targets

What value is there to the user?

- Web single-sign on across a worldwide set of sites
- Fewer passwords
- Tools to manage privacy
- A ‘trusted party’ is asserting values and eligibility
- NOT tied to IP address or browser

-Courtesy of Steve Carmody, Brown University

Why is this important to NSF?

- Provides easier authenticated access to services the research and education community wants and needs to reach
  - Perfect fit for access to Research.gov and FastLane
- Keeps NSF in a leadership role for use of “Federated Identity”
- Enhanced security
  - More work done electronically “behind the scenes”
  - No local IDs and passwords
  - Users won’t need to write down multiple passwords
- Reduces NSF’s need to manage accounts
  - Institutions and individuals at those member institutions become responsible for the integrity of their own information
- Unified authentication methods build on standards
  - Much more scalable
  - Easier to bring new “customers” online

What is InCommon?
and
What does
“Federation” mean?

InCommon

> “InCommon eliminates the need for researchers, students, and educators to maintain multiple, passwords and usernames. Identity providers manage the levels of their users' privacy and information exchange. InCommon uses SAML-based authentication and authorization systems (such as Shibboleth®) to enable scalable, trusted collaborations among its community of participants.”

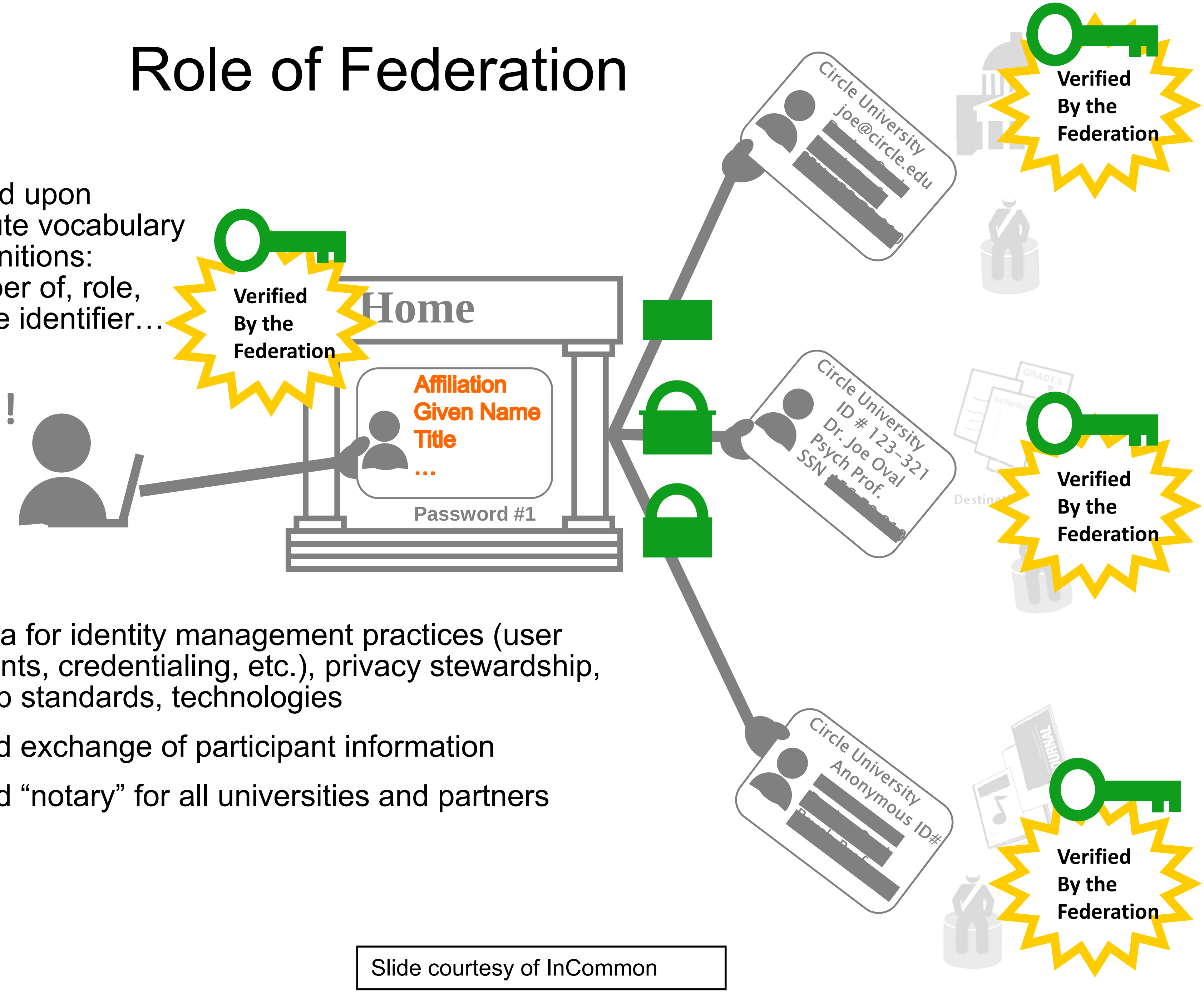
- InCommon Federation (www.incommonfederation.org)
  - Mission: create and support a common framework for trustworthy shared management of access to on-line resources in support of education and research in the US
- US Research and Education Federation
  - Separate entity with its own governance
  - Operations managed by Internet2
  - Members are degree granting accredited organizations and their partners

What is “Federation”?

- A group of member organizations who agree to a set of rules
- An independent body, managing the trust relationships between members
- Publishers, agencies and resource providers act as ‘service providers’ (SPs)
- InCommon is a Federation

Role of Federation

1. Agreed upon attribute vocabulary & definitions: member of, role, unique identifier…



2. Criteria for identity management practices (user accounts, credentialing, etc.), privacy stewardship, interop standards, technologies
3. Trusted exchange of participant information
4. Trusted “notary” for all universities and partners

Slide courtesy of InCommon

What services does the Federation provide?

- Rules that binds members:
  - Make accurate statements to other members
  - Keep federation systems and data secure
  - Use personal data correctly
  - Resolve problems within the Federation
    - Not by legal action
- Guidance, examples, support
  - How to comply with the Rules
  - How to work with other members
    - Common definitions, etc.

InCommon®

What services does the Federation provide?

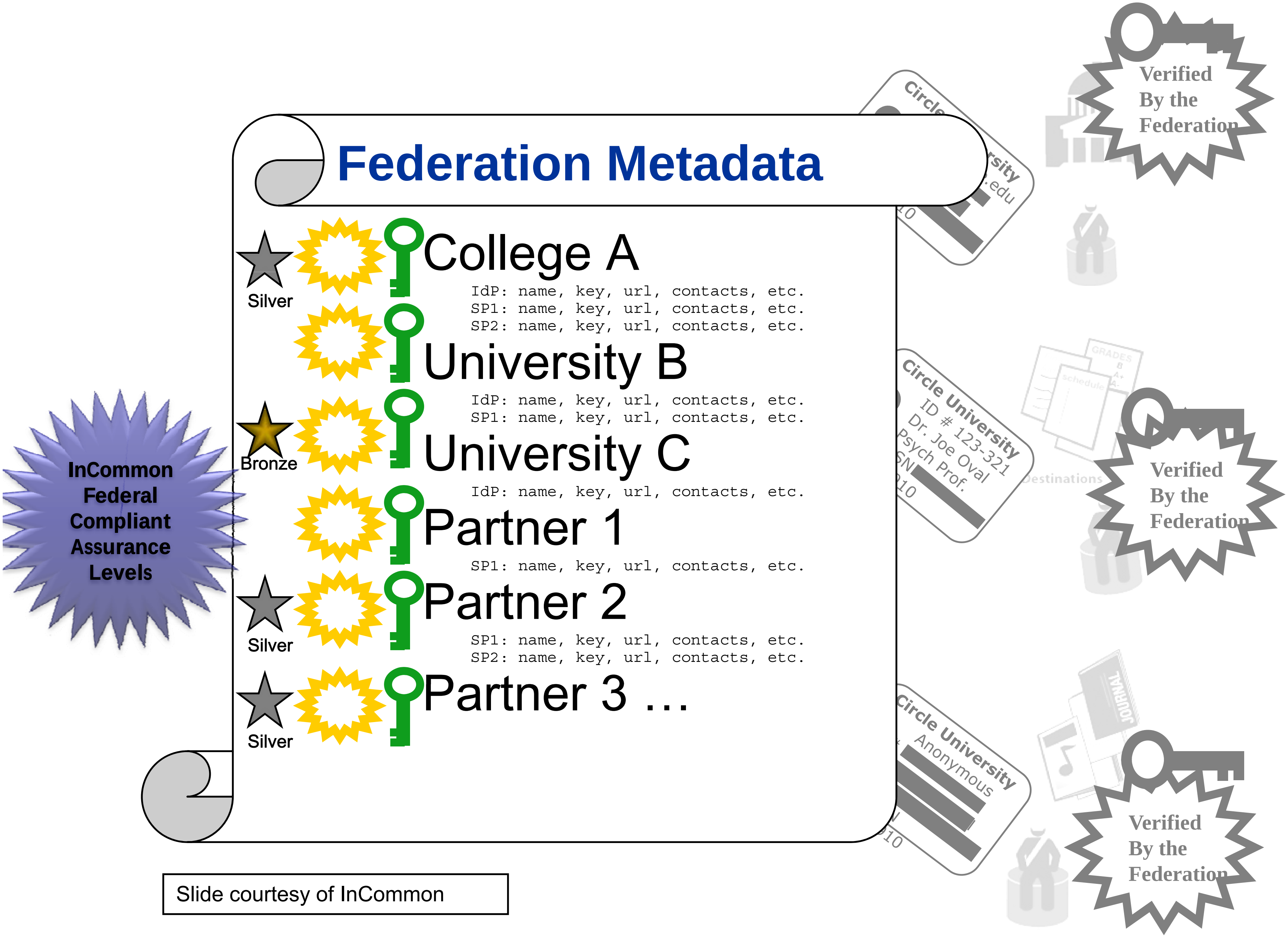
- Operational management
  - Registration mechanism for SPs and IdPs
  - Adding new members to the federation & updating existing members' metadata
  - Fault finding and trouble shooting
  - Compatibility testing of server certificates and CA Qualification
  - Technical and operational documentation
  - Ongoing federation development
  - Reporting

What does the Federation do?

- Uses shared technology
- Provides “common data” or “attributes” to exchange
- Enables scaling beyond the technology
  - Rules of engagement
  - Information about how to connect
- Performs vetting of organizations and representatives
- Maintains member information

Levels of Assurance

M04-04/ NIST 800-63	Requirement	Application Risk	InCommon
Level 1: Little or no confidence	User ID and Password SAML	Low	Bronze
Level 2: Some confidence	User ID and Password SAML	Moderate (money)	Silver
Level 3: High Confidence	Tokens and certificates PKI	High	Gold
Level 4: Very high confidence	Tokens and certificates PKI	Highest	[Platinum?]



Federation Metadata

Silver

College A

IdP: name, key, url, contacts, etc.
SP1: name, key, url, contacts, etc.
SP2: name, key, url, contacts, etc.

University B

IdP: name, key, url, contacts, etc.
SP1: name, key, url, contacts, etc.

Bronze

University C

IdP: name, key, url, contacts, etc.

Partner 1

SP1: name, key, url, contacts, etc.

Silver

Partner 2

SP1: name, key, url, contacts, etc.
SP2: name, key, url, contacts, etc.

Silver

Partner 3 …

Silver

InCommon Federal Compliant Assurance Levels

Slide courtesy of InCommon

US InCommon Membership and Federation Highlights

- Current InCommon Members
  - 96 Colleges and Universities
    - More every week
    - Growth almost exponential
  - ~~5~~ **6** Government and Nonprofit Labs, Research Centers, and Agencies
  - 33 Corporations
  - More pending
- Other Federations
  - State university systems
  - Community college libraries
  - Medical associations
  - DoJ and DoD
- All do SAML; most are Shib

-Source: K. Klingenstein, Internet2/InCommon

96 Colleges and Universities

Arizona State University
Brown University
California Polytechnic State U - San Luis Obispo
California State University, Office of the Chancellor
Carleton College
Case Western Reserve University
Clemson University
College of William and Mary
Colorado State University
Columbia University
Cornell University
Dartmouth
Duke University
Emory University
Florida State University
George Mason University
Georgetown University
Hampden-Sydney College
Indiana University
James Madison University
Johns Hopkins
Lafayette College
Liberty University
Massachusetts Institute of Technology
Medical University of South Carolina
Miami University
Michigan State University
Michigan Technological University
New York University
North Carolina State University
Northern Arizona University
Northern Michigan University

Northwestern University
Ohio State University
Ohio University
Old Dominion University
Penn State
Purdue University
Ramapo College of New Jersey
Rutgers, The State University of New Jersey
Seattle Central Community College
Stanford University
Stark State College of Technology
Stevens Institute of Technology
Stony Brook University
Sweet Briar College
Texas A & M University
The University of Chicago
The University of Findlay
The University of Michigan
The University of North Carolina at Chapel Hill
University at Buffalo, SUNY
University of Alabama at Birmingham
University of Arizona
University of California, Berkeley
University of California, Davis
University of California, Irvine
University of California, Los Angeles
University of California, Merced
University of California, Office of the President
University of California, Riverside
University of California, San Diego
University of California, San Francisco
University of California, Santa Cruz

University of Colorado at Boulder
University of Dayton
University of Florida
University of Houston-Downtown
University of Illinois at Urbana-Champaign
University of Iowa
University of Mary Washington
University of Maryland
University of Maryland Baltimore County
University of Maryland, Baltimore
University of Massachusetts Amherst
University of Minnesota
University of Missouri System
University of Nebraska - Lincoln
University of Nevada, Reno
University of Northern Colorado
University of Northwestern Ohio
University of Richmond
University of Rochester
University of South Carolina
University of South Florida
University of Southern California
University of Utah
University of Vermont
University of Virginia
University of Washington
University of Wisconsin - Madison
University of Wisconsin - Whitewater
Vanderbilt University
Virginia Commonwealth University
Virginia Polytechnic Institute & State University
Virginia State University

Members: Government and Nonprofit Laboratories,Research Centers ,and A gencies

Members

- Energy Sciences Network (ESNet)
- Lawrence Berkeley National Laboratory
- Moss Landing Marine Laboratories
- National Institutes of Health
- **TeraGrid**
- **National Science Foundation as of 1/29/2009**

Pending

- ***LIGO***
- ***OOI***
- ***Department of Education***

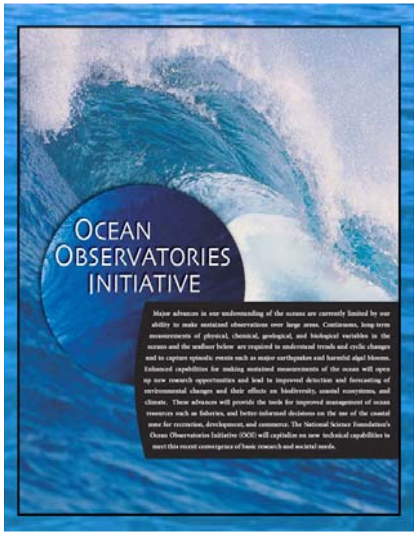
In the virtual organizations, there is a bit of a "chicken and egg" problem as the member institutions have to adopt SAML and Shib before the VO can make use of it.

Considering

- ***NEON***
- ***OSG***

NSF Large Facilities Are Already Joining InCommon

Laser Interferometer
Gravitational-Wave
Observatory



OCEAN
OBSERVATORIES
INITIATIVE

Major advances in our understanding of the oceans are currently limited by our ability to make sustained observations over large areas. Continuous, long-term measurements of physical, chemical, geological, and biological variables in the oceans and the seafloor below are required to understand trends and cyclic changes and to capture episodic events such as major earthquakes and harmful algal blooms. Enhanced capabilities for making sustained measurements of the ocean will open up new research opportunities and lead to improved detection and forecasting of environmental changes and their effects on biodiversity, coastal ecosystems, and climate. These advances will provide the tools for improved management of ocean resources such as fisheries, and better-informed decisions on the use of the coastal zone for recreation, development, and commerce. The National Science Foundation's Ocean Observatories Initiative (OOI) will capitalize on new technical capabilities to meet this recent convergence of basic research and societal needs.

Ocean
Observatories
Initiative

TeraGrid

- piloting/test bed now
    - Expect XD (TG phase 3) to use it in production

Considering InCommon membership:
Long Term Ecological Research [lternet.edu]
National Ecological Observatory Network [neoninc.org]

33 Sponsored Partners

Members

- Absolute Software, Inc.
- ***Apple - iTunes U****
- Burton Group
- Cengage Learning, Inc.
- e2Campus by Omnilert, LLC
- ***EBSCO Publishing****
- ***Elsevier****
- Houston Academy of Medicine - Texas Medical
- Identit-e
- Internet2
- ***JSTOR****
- ***Kuali Foundation****
- ***Microsoft****
- National Institute for Technology and Liberal Education (NITLE)
- ***National Student Clearinghouse****
  (student loan processing)
- NG Web Solutions
- OCLC
- OhioLink - The Ohio Library & Information Network
- Omnilert, LLC
- Outside The Classroom
- PeopleAdmin, Inc.
- ProQuest LLC
- ProtectNetwork
- RefWorks, LLC
- Safari Books Online
- Students Only Inc.
- SumTotal Systems Inc.
- Symplicity Corporation
- Travel Solutions, Inc.
- Trondent Development Corp.
- Turnitin
- UniversityTickets
- WebAssign

Pending

- ***Google****
- ***student service companies****
- *medical consortia*

***Incentive for more colleges and universities to join**

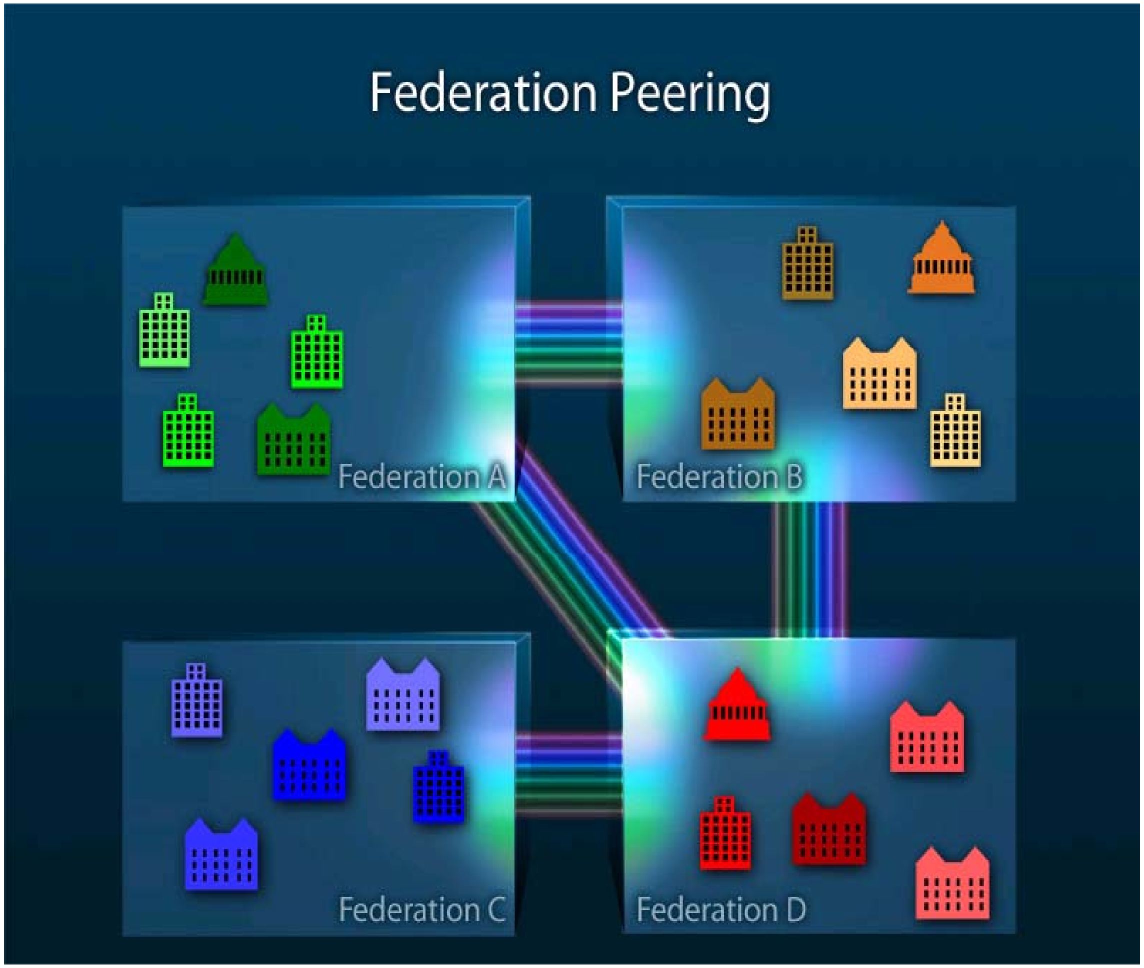
The research community will benefit as institutions opt for federated services to meet administrative needs, eg student loan processing.

International Federation Highlights

- International Federation Highlights
  - Numerous countries including Norway, Switzerland, Finland, Spain, France, Sweden, Finland, Switzerland, Netherlands, Germany, Denmark, Norway, Australia, Brazil, Japan, Canada, etc.
  - Several countries at 100% coverage, including Norway, Switzerland and Finland
  - Community served varies somewhat by country, but all are multi-application and include higher education
  - UK intends a single federation for HE and Further Education ~ tens of millions of users
  - Real use cases involving international team science now driving interfederation peering urgency
- All do SAML; most are Shib
- Working to “peer” Federations

-Source: K. Klingenstein, Internet2/InCommon

Peering Parameters



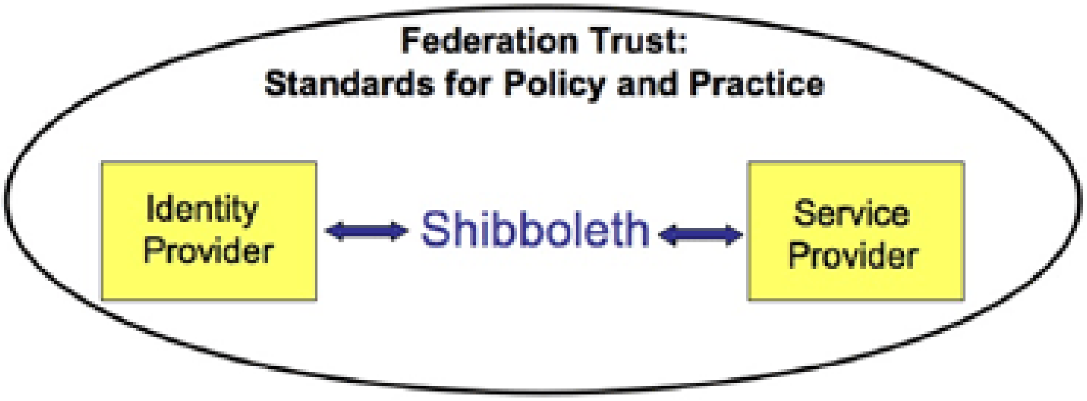
Parameters:

- LOA
- Attribute mapping
- Legal structures
  - Liability
  - Adjudication
- Metadata
  - VO Support
- Economics
- Privacy

How does it work?

How does it work?

Home
institution



- **The Players**
  - IdP authenticates the browser user, and provides Attribute Assertions describing the user
  - SP validates the Assertions, makes an Access Control decision, and provides resources

- **How is it Implemented?**
  - Messages sequence between the IdP and the SP
  - Most messages move through the user's Web browser

- **Metadata defines the:**
  - Trust framework
  - Trusted parties
  - Attributes the SPs want

- **Importance of**
  - Policy
  - Trust

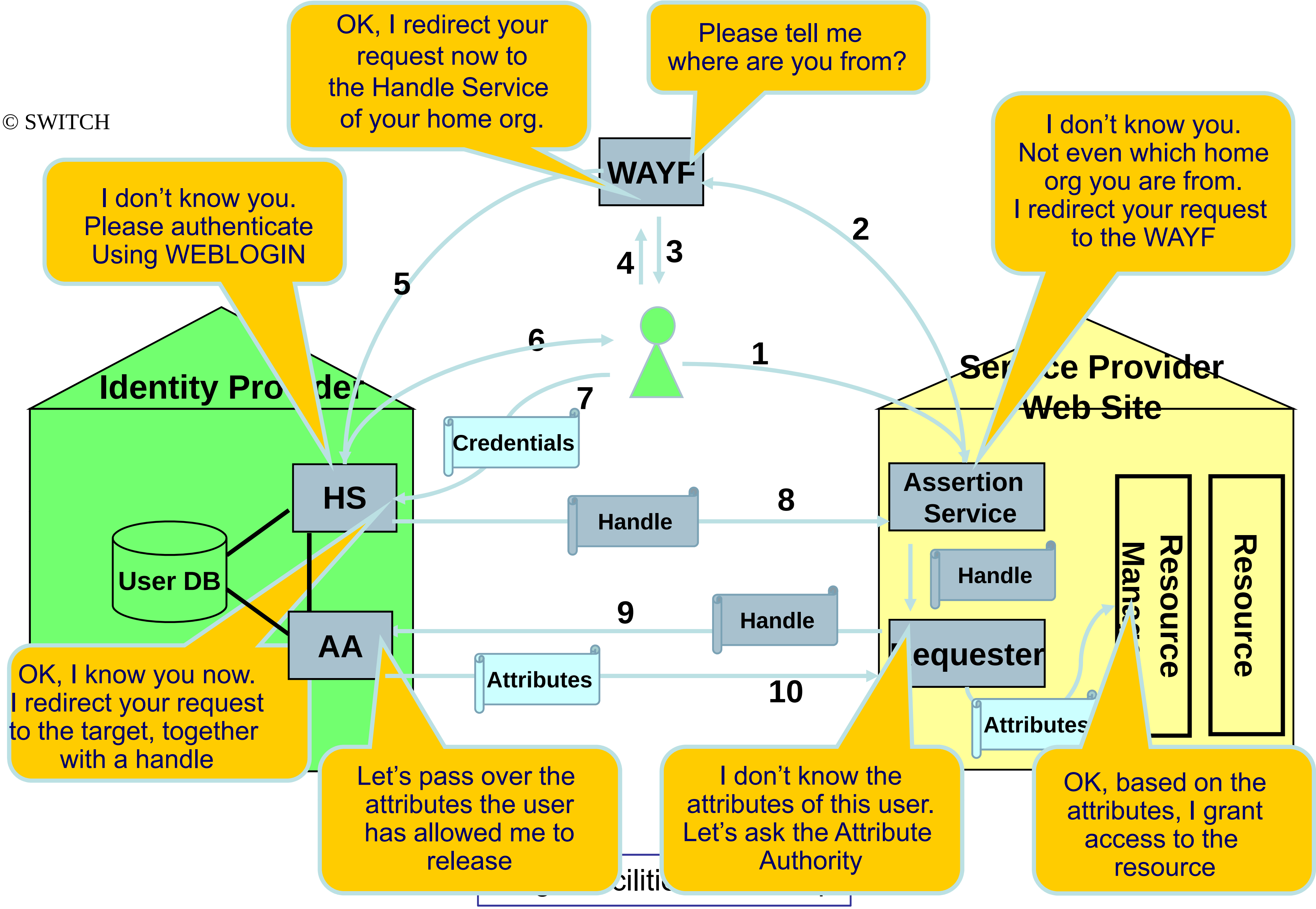
R&D to Market

- TCP/IP
  - first as a technology
  - then as a market-maker
- SAML/Shibboleth
  - first as a technology
  - then as a market-maker
- Collaboration tools and collaboration management platforms

- Many of these technologies developed with NSF NMI/CISE (now OCI) support
  - "Shibboleth" and other Middleware

What is WAYF?

- “Where are you from?”
- Verification method for Shib
- Developed in the UK



Please tell me where are you from?

OK, I redirect your request now to the Handle Service of your home org.

I don't know you. Not even which home org you are from. I redirect your request to the WAYF

I don't know you. Please authenticate Using WEBLOGIN

OK, I know you now. I redirect your request to the target, together with a handle

Let's pass over the attributes the user has allowed me to release

I don't know the attributes of this user. Let's ask the Attribute Authority

OK, based on the attributes, I grant access to the resource

What does this all mean for NSF?

How are we implementing this here?

What will NSF’s customers be able to do?

- Research.gov
  - Login with credentials issued by their home institution
  - View Proposal Status
    - NSF
    - USDA/CSREES
    - Army Research Office
    - More in progress
  - Create and submit Federal Financial Reports to NSF
  - Maintain their user profiles
  - And much more…

- FastLane
  - Login with credentials issued by their home institution
  - Access and use current PI/co-PI suite of functions
  - Perform Research Administration
  - Use proposal and award functions

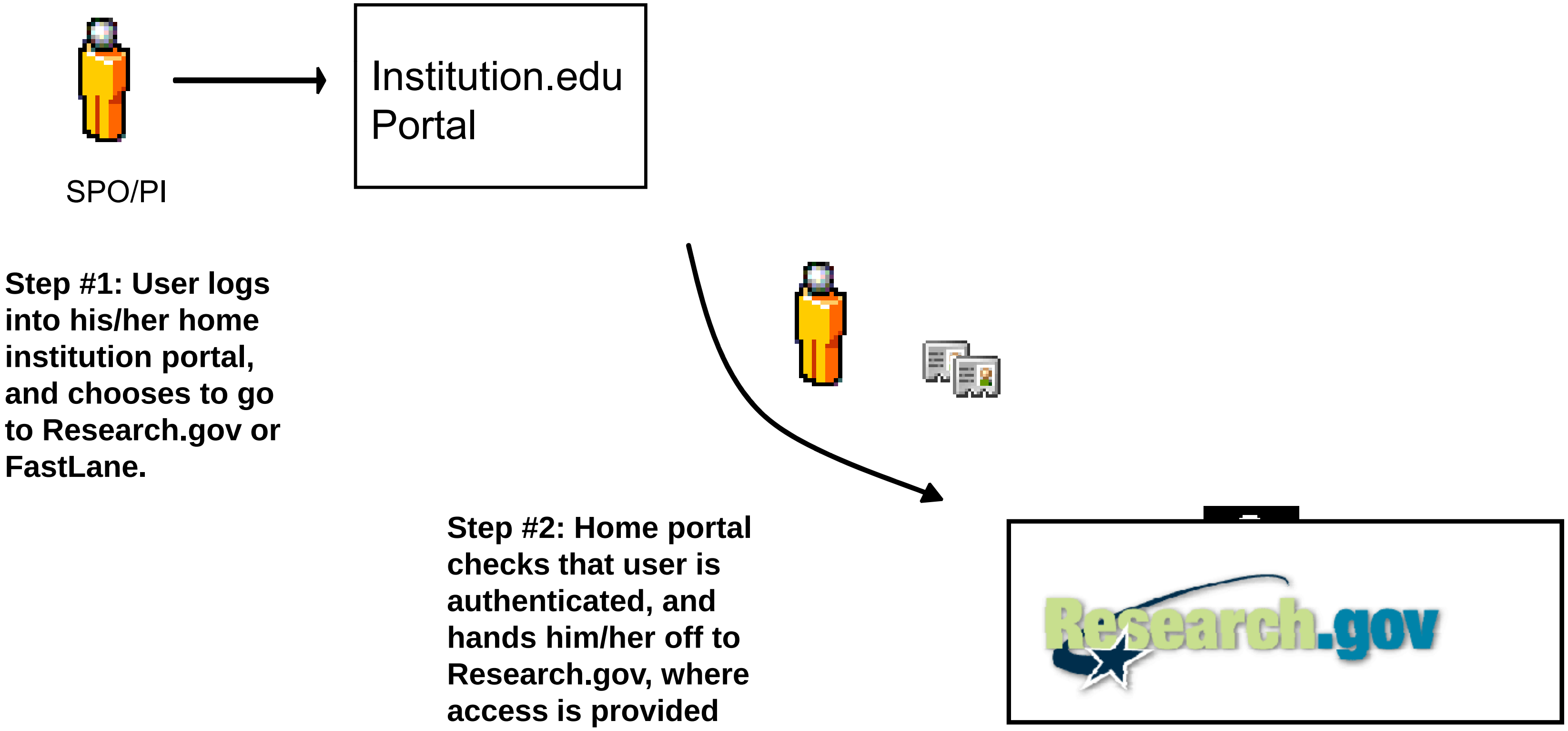
Planned Pilot

- Demonstrate “proof of concept” with Ohio State University - complete
- Research.gov
  - Connect other institutions
    - Pennsylvania State University
    - University of Washington
    - Georgetown University
    - Colorado State University
    - University of California-Davis
  - Expand to other Research.gov institutions
- FastLane
  - Timeline to be determined
  - Successfully demonstrated in December 2006

Shared Data (minimum)

- Common Name
- Given Name
- Surname
- Middle Name (init)
- Business email
- Institutional affiliation of credential issuer
- Authentication LOA (level of assurance of identity) – will be 1 for this round
- a unique identifier for the user

How will it at work at NSF?



SPO/PI

Institution.edu Portal

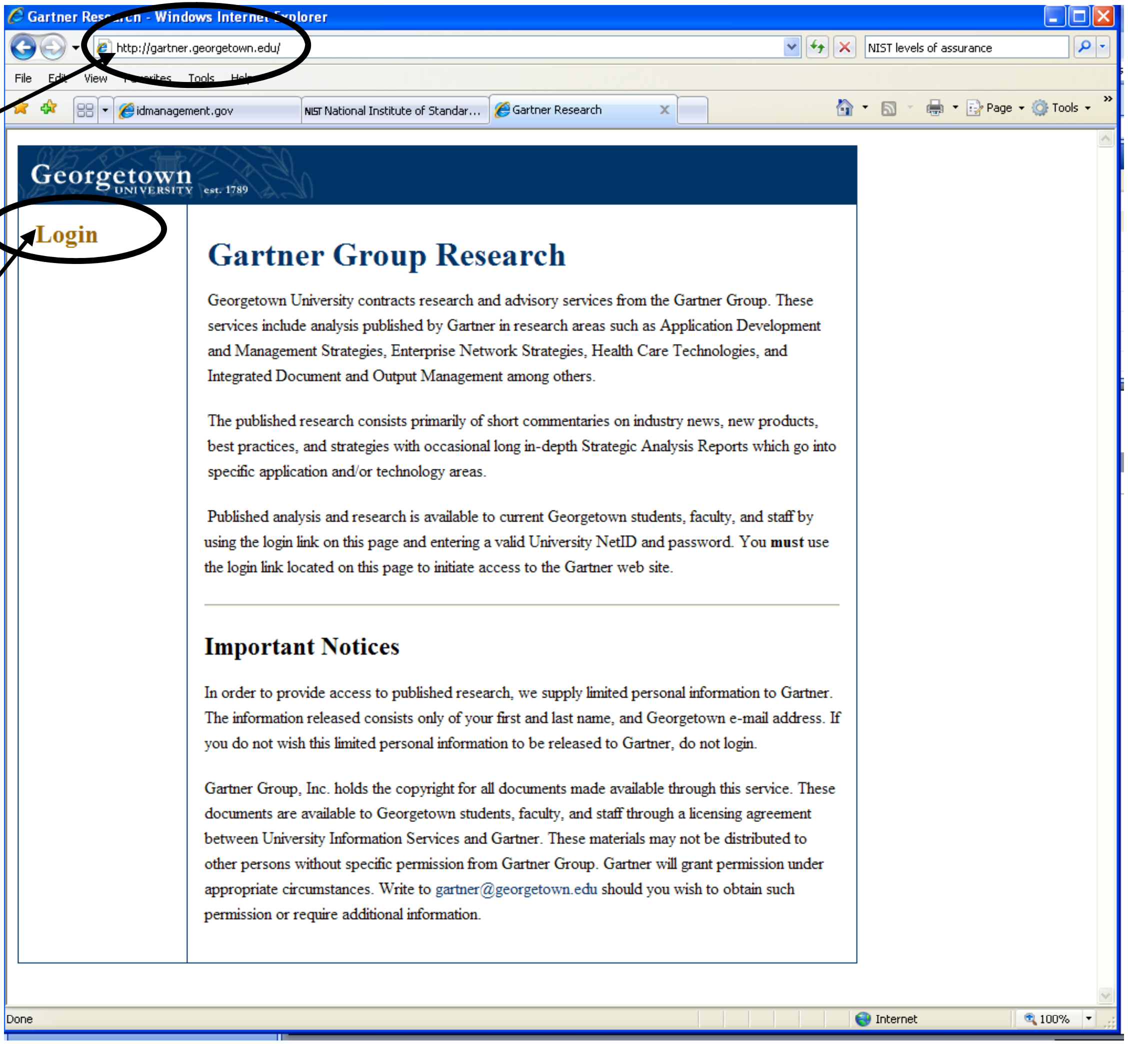
Step #1: User logs into his/her home institution portal, and chooses to go to Research.gov or FastLane.

Step #2: Home portal checks that user is authenticated, and hands him/her off to Research.gov, where access is provided only to the user's own work items.

An example of a current service at an IdP… Step 1: start

1. User may click from SPO home page or type http://nsf.georgetown.edu, for example

2. User (reads notice) and clicks “Login”


Gartner Research - Windows Internet Explorer
http://gartner.georgetown.edu/
NIST levels of assurance
File Edit View Favorites Tools Help
idmanagement.gov
NIST National Institute of Standar…
Gartner Research
Page
Tools
Georgetown UNIVERSITY est. 1789
Login
Done
Internet
100%

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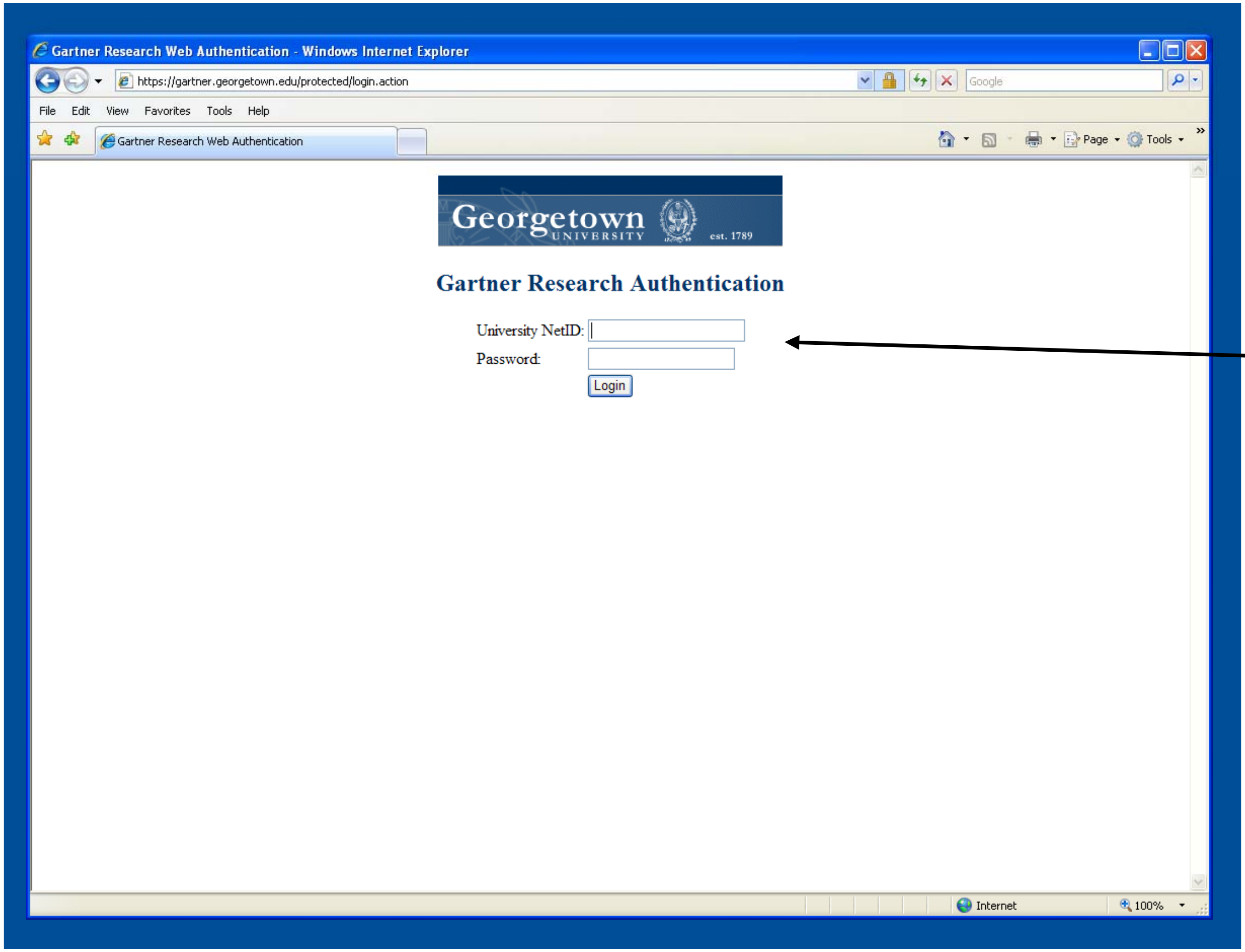
An example of a current service…
Step 2: authentication



Gartner Research Web Authentication - Windows Internet Explorer

https://gartner.georgetown.edu/protected/login.action

Gartner Research Authentication

University NetID:

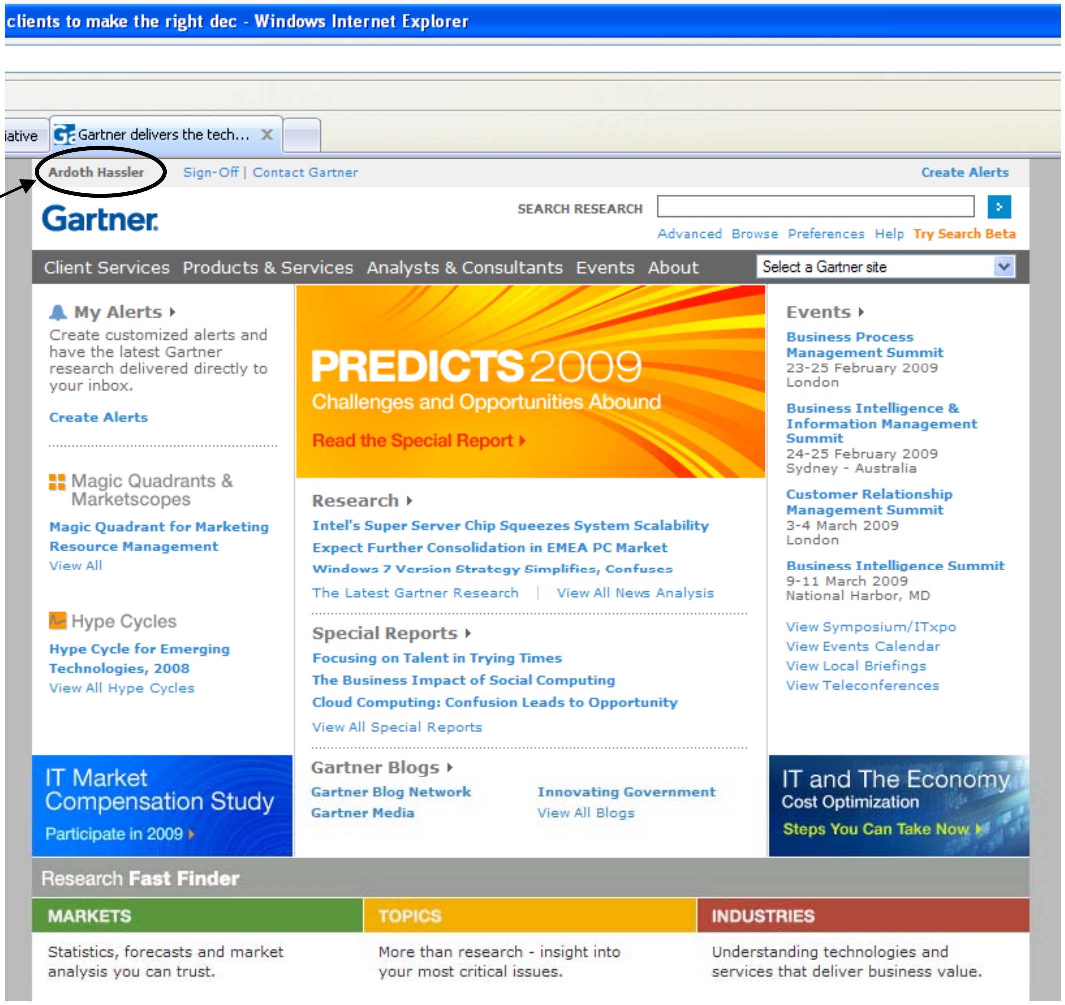
Password:

Login

"Ardoth Hassler" logs in with unique credential, eg."hasslera", and password. After authentication, her information is passed to service provider.

An example of a current service…
Step 3: access

User recognized and now has access to offerings available under license agreement.


clients to make the right dec - Windows Internet Explorer
iative
Gartner delivers the tech…
Ardoth Hassler
Sign-Off | Contact Gartner
Create Alerts
Gartner
SEARCH RESEARCH
Advanced Browse Preferences Help Try Search Beta
Client Services Products & Services Analysts & Consultants Events About
Select a Gartner site

My Alerts ›

Create customized alerts and have the latest Gartner research delivered directly to your inbox.

Create Alerts

Magic Quadrants & Marketscopes

Magic Quadrant for Marketing Resource Management

View All

Hype Cycles

Hype Cycle for Emerging Technologies, 2008

View All Hype Cycles

IT Market Compensation Study

Participate in 2009 ›

PREDICTS 2009

Challenges and Opportunities Abound

Read the Special Report ›

Research ›

Intel's Super Server Chip Squeezes System Scalability

Expect Further Consolidation in EMEA PC Market

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Business Process Management Summit
23-25 February 2009
London

Business Intelligence & Information Management Summit
24-25 February 2009
Sydney - Australia

Customer Relationship Management Summit
3-4 March 2009
London

Business Intelligence Summit
9-11 March 2009
National Harbor, MD

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View Events Calendar

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View Teleconferences

IT and The Economy

Cost Optimization

Steps You Can Take Now ›

Research Fast Finder

MARKETS

Statistics, forecasts and market analysis you can trust.

TOPICS

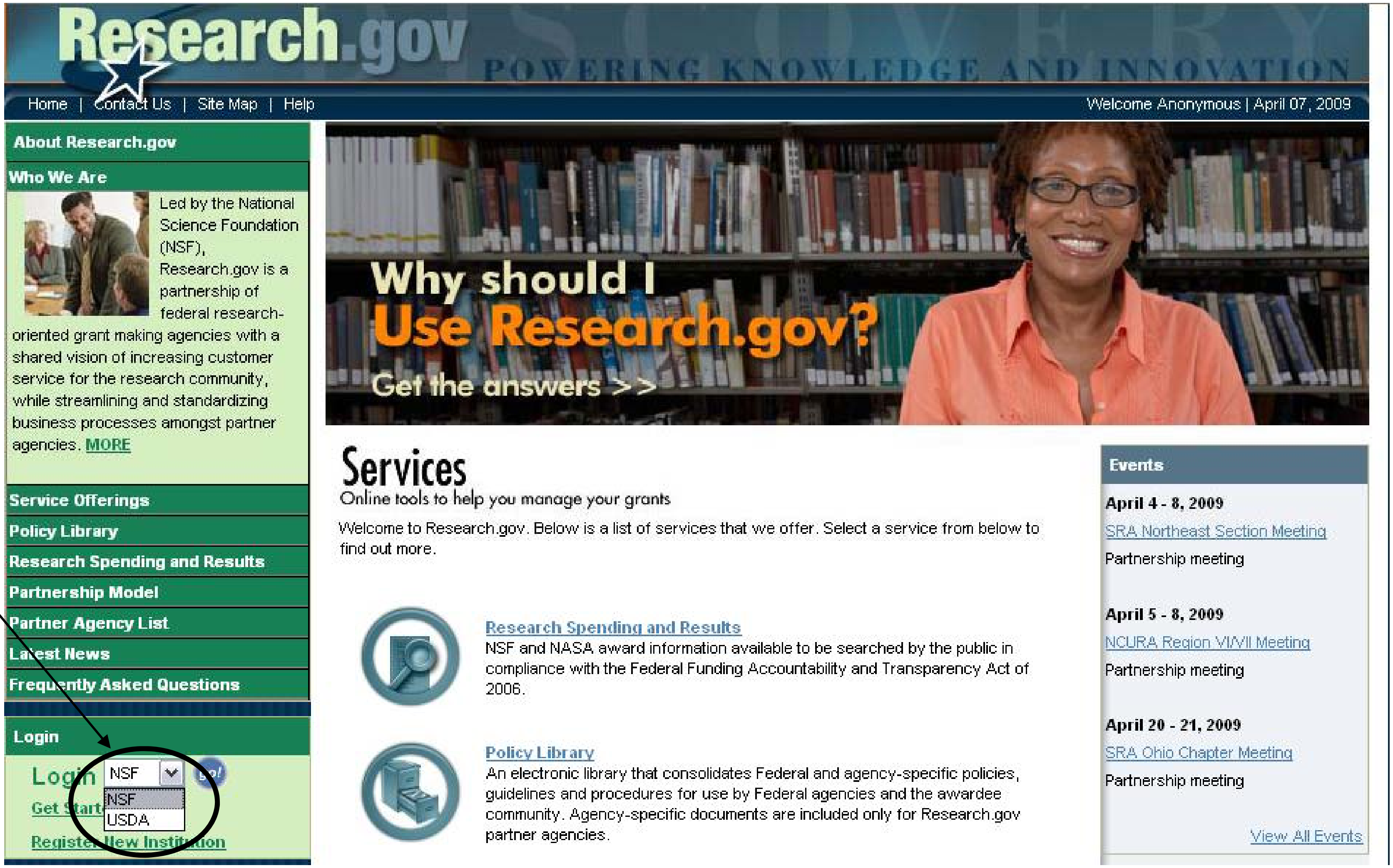
More than research - insight into your most critical issues.

INDUSTRIES

Understanding technologies and services that deliver business value.

Example of “launch” at NSF

User selects login path



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Welcome Anonymous | April 07, 2009

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Service Offerings

Policy Library

Research Spending and Results

Partnership Model

Partner Agency List

Latest News

Frequently Asked Questions

Login

Login NSF

NSF

USDA

Get Started

Register New Institution

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Get the answers >>

Services

Online tools to help you manage your grants

Welcome to Research.gov. Below is a list of services that we offer. Select a service from below to find out more.

Research Spending and Results

NSF and NASA award information available to be searched by the public in compliance with the Federal Funding Accountability and Transparency Act of 2006.

Policy Library

An electronic library that consolidates Federal and agency-specific policies, guidelines and procedures for use by Federal agencies and the awardee community. Agency-specific documents are included only for Research.gov partner agencies.

Events

April 4 - 8, 2009

SRA Northeast Section Meeting

Partnership meeting

April 5 - 8, 2009

NCURA Region VI/VII Meeting

Partnership meeting

April 20 - 21, 2009

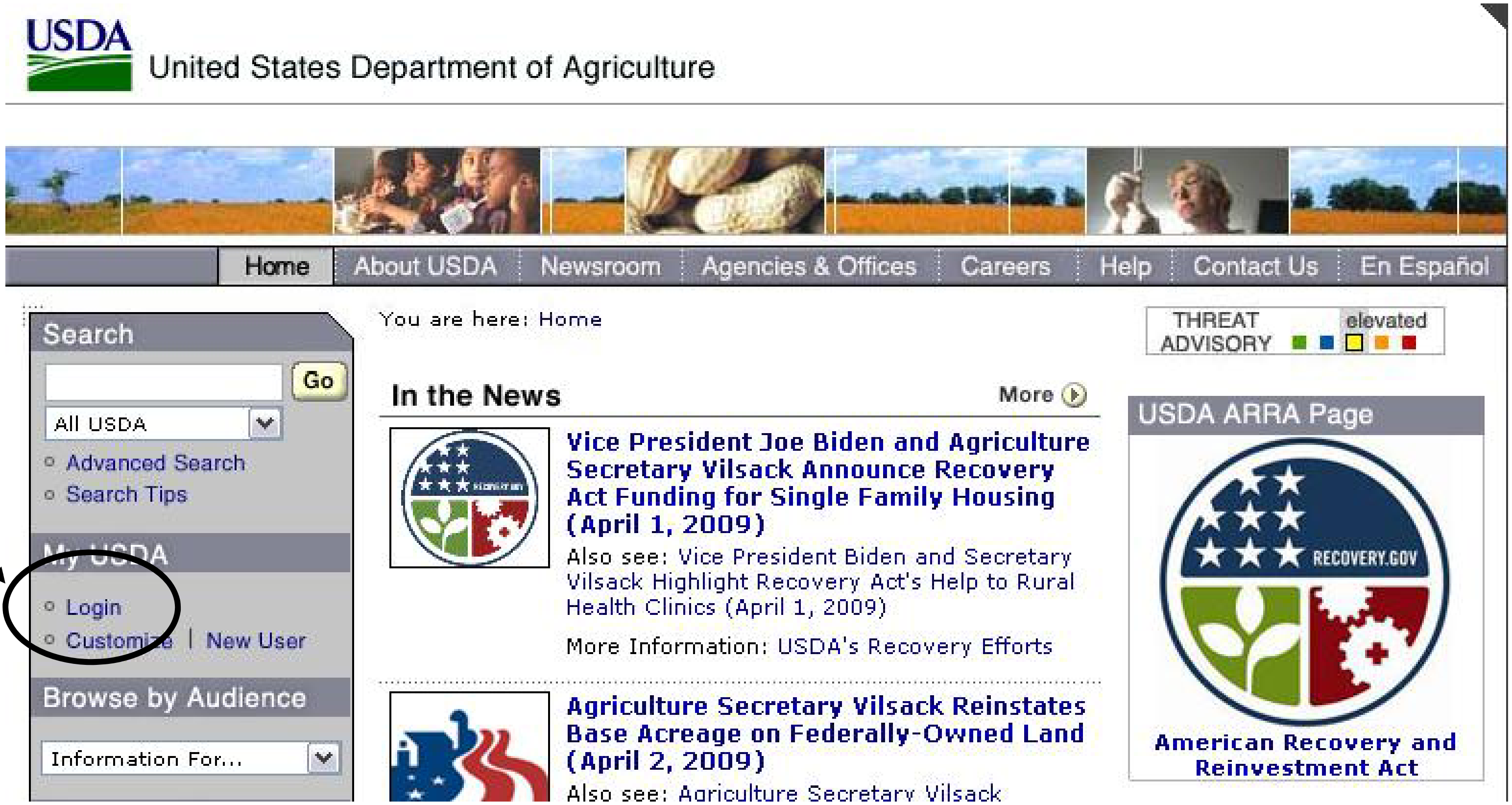
SRA Ohio Chapter Meeting

Partnership meeting

View All Events

Example of “launch” from USDA

Or, user logs in



You are here: Home

In the News

Vice President Joe Biden and Agriculture Secretary Vilsack Announce Recovery Act Funding for Single Family Housing (April 1, 2009)

Also see: Vice President Biden and Secretary Vilsack Highlight Recovery Act's Help to Rural Health Clinics (April 1, 2009)

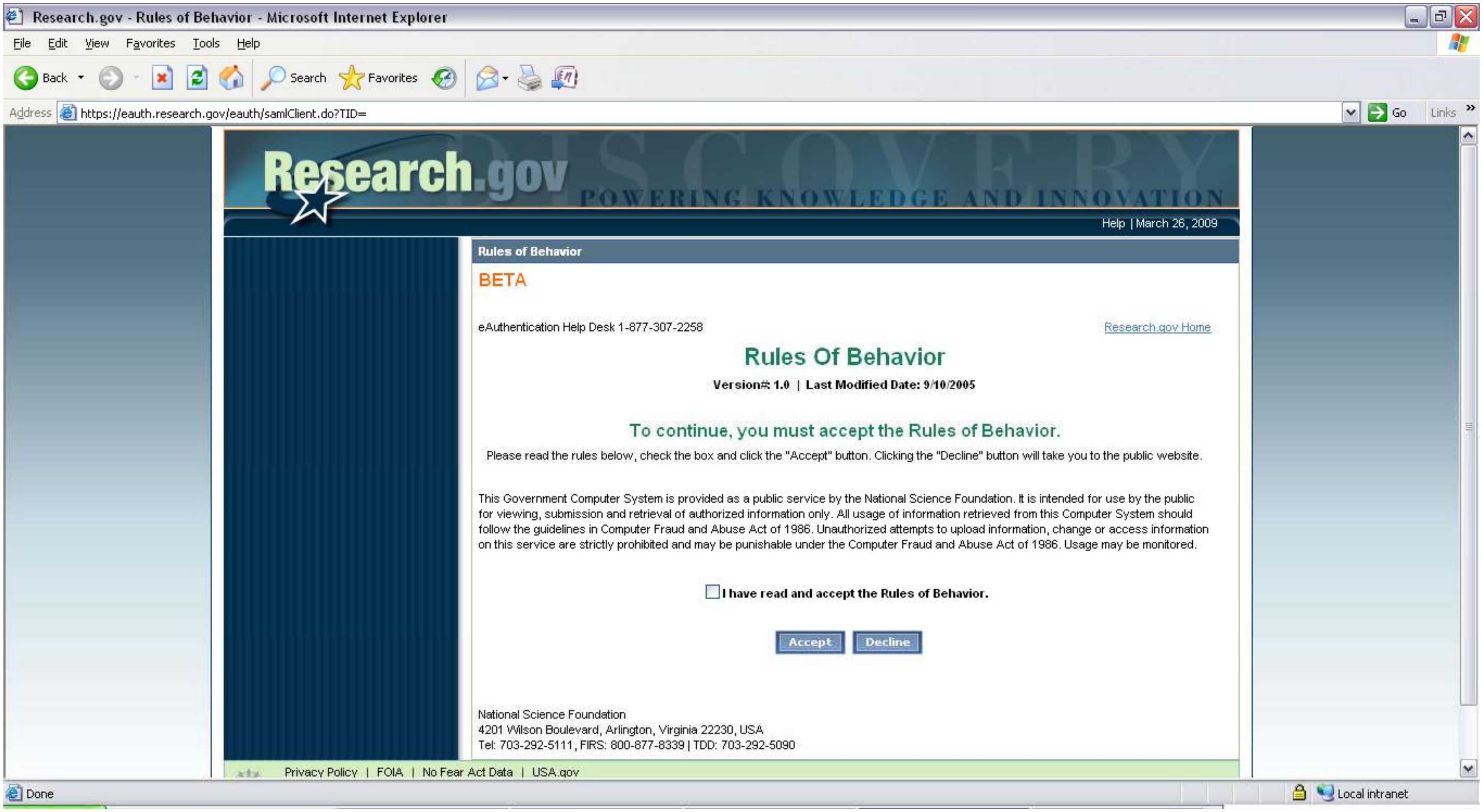
More Information: USDA's Recovery Efforts

Agriculture Secretary Vilsack Reinstates Base Acreage on Federally-Owned Land (April 2, 2009)

Also see: Agriculture Secretary Vilsack

American Recovery and Reinvestment Act

Example of “arrival” at NSF



Research.gov - Rules of Behavior - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address https://eauth.research.gov/eauth/samlClient.do?TID=
Go
Links
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Help | March 26, 2009
Rules of Behavior

BETA

eAuthentication Help Desk 1-877-307-2258

Research.gov Home

Rules Of Behavior

Version#: 1.0 | Last Modified Date: 9/10/2005

To continue, you must accept the Rules of Behavior.

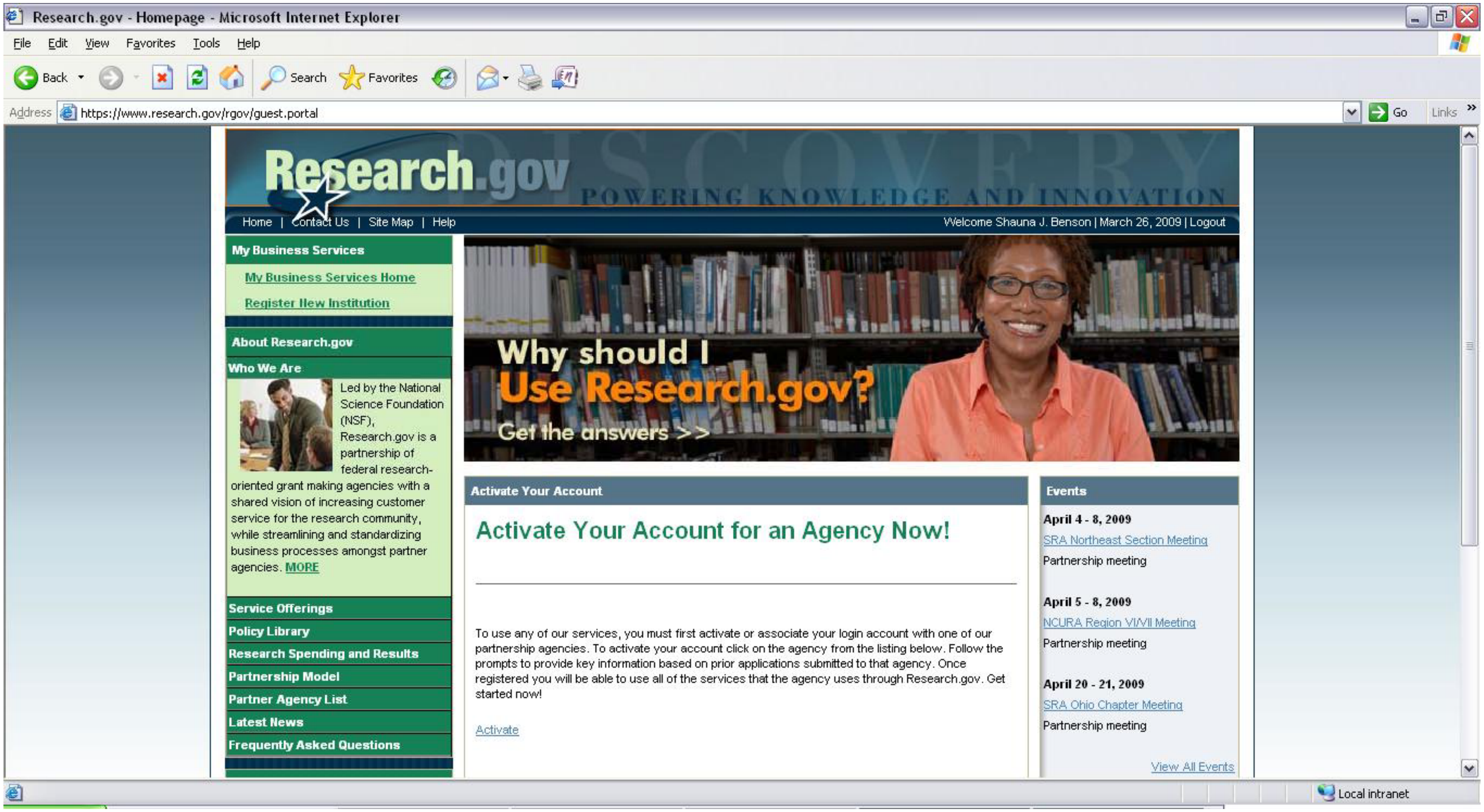
Please read the rules below, check the box and click the "Accept" button. Clicking the "Decline" button will take you to the public website.

This Government Computer System is provided as a public service by the National Science Foundation. It is intended for use by the public for viewing, submission and retrieval of authorized information only. All usage of information retrieved from this Computer System should follow the guidelines in Computer Fraud and Abuse Act of 1986. Unauthorized attempts to upload information, change or access information on this service are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986. Usage may be monitored.

□ **I have read and accept the Rules of Behavior.**

National Science Foundation
4201 Wilson Boulevard, Arlington, Virginia 22230, USA
Tel: 703-292-5111, FIRS: 800-877-8339 | TDD: 703-292-5090

Example of “arrival” at NSF


Research.gov - Homepage - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
https://www.research.gov/rgov/guest.portal
Go
Links
Local intranet

Research.gov

DISCOVERY

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Home | Contact Us | Site Map | Help

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Service Offerings

Policy Library

Research Spending and Results

Partnership Model

Partner Agency List

Latest News

Frequently Asked Questions

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To use any of our services, you must first activate or associate your login account with one of our partnership agencies. To activate your account click on the agency from the listing below. Follow the prompts to provide key information based on prior applications submitted to that agency. Once registered you will be able to use all of the services that the agency uses through Research.gov. Get started now!

Activate

Events

April 4 - 8, 2009
SRA Northeast Section Meeting
Partnership meeting

April 5 - 8, 2009
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Partnership meeting

April 20 - 21, 2009
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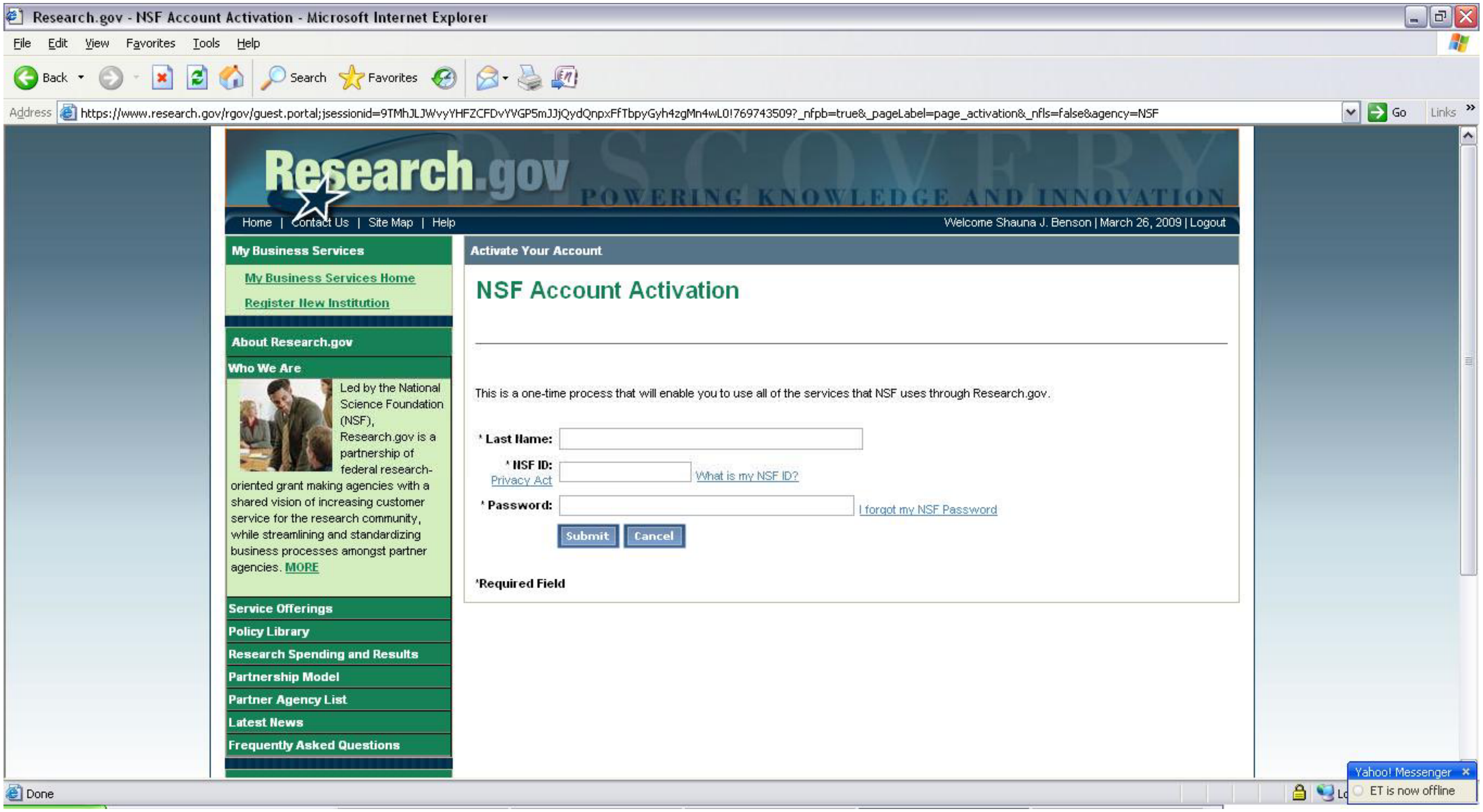
Partnership meeting

View All Events

Example of “arrival” at NSF

“prompted activation”


Research.gov - NSF Account Activation - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Address
Go
Links
Done
Yahoo! Messenger
ET is now offline

https://www.research.gov/rgov/guest.portal;jsessionid=9TMhJLJWvyYHFZCFDvYVGP5mJJjQydQnpxFfTbpyGyh4zgMn4wL0!769743509?_nfpb=true&_pageLabel=page_activation&_nfls=false&agency=NSF

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Home | Contact Us | Site Map | Help

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My Business Services

My Business Services Home

Register New Institution

About Research.gov

Who We Are

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Service Offerings

Policy Library

Research Spending and Results

Partnership Model

Partner Agency List

Latest News

Frequently Asked Questions

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NSF Account Activation

This is a one-time process that will enable you to use all of the services that NSF uses through Research.gov.

* **Last Name:**

* **NSF ID:** What is my NSF ID?

Privacy Act

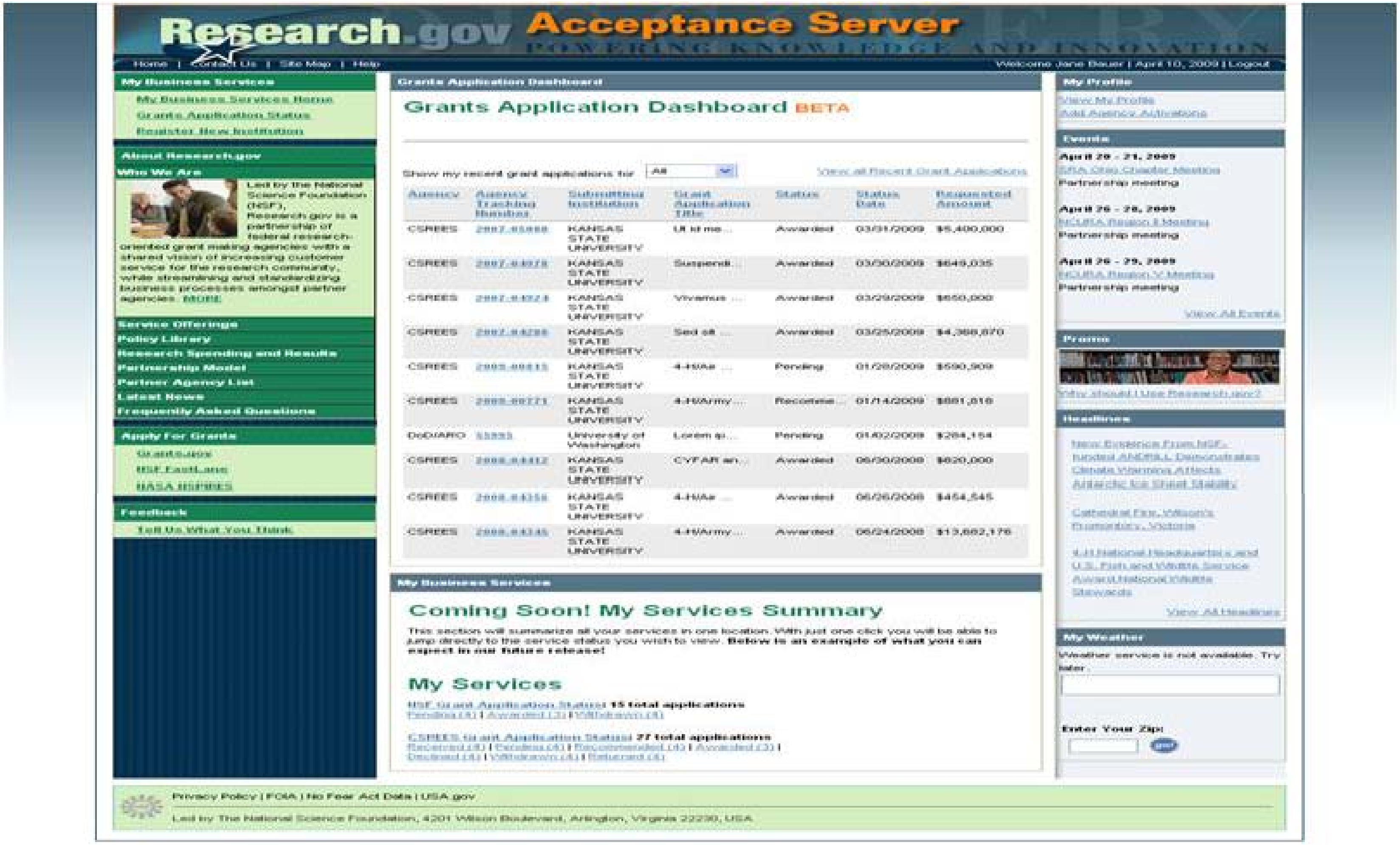
* **Password:** I forgot my NSF Password

Submit Cancel

***Required Field**

Large Facilities Workshop

User is ready to “work”



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POWERING KNOWLEDGE AND INNOVATION
Home | Contact Us | Site Map | Help
Welcome Jane Bauer | April 10, 2009 | Logout

My Business Services

- My Business Services Home
- Grants Application Status
- Register New Institution

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Who We Are

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- Service Offerings
- Policy Library
- Research Spending and Results
- Partnership Model
- Partner Agency List
- Latest News
- Frequently Asked Questions

Apply For Grants

- Grants.gov
- NSF FastLane
- NASA NSPIRES

Feedback

- Tell Us What You Think

Grants Application Dashboard

Grants Application Dashboard BETA

Show my recent grant applications for: All

View all Recent Grant Applications

Agency	Agency Tracking Number	Submitting Institution	Grant Application Title	Status	Status Date	Requested Amount
CSREES	2007-85888	KANSAS STATE UNIVERSITY	Ut id me ...	Awarded	03/31/2009	$5,400,000
CSREES	2007-84878	KANSAS STATE UNIVERSITY	Suspendi ...	Awarded	03/30/2009	$649,035
CSREES	2007-84924	KANSAS STATE UNIVERSITY	Vivamus ...	Awarded	03/29/2009	$650,000
CSREES	2007-84298	KANSAS STATE UNIVERSITY	Sed sit ...	Awarded	03/25/2009	$4,388,870
CSREES	2005-40415	KANSAS STATE UNIVERSITY	4-H/Ae ...	Pending	01/28/2009	$590,909
CSREES	2005-40771	KANSAS STATE UNIVERSITY	4-H/Army ...	Recomme...	01/14/2009	$881,818
DoD/ARO	55555	University of Washington	Lorem ip...	Pending	01/02/2009	$284,154
CSREES	2008-84412	KANSAS STATE UNIVERSITY	CYFAR an...	Awarded	06/30/2008	$820,000
CSREES	2008-84356	KANSAS STATE UNIVERSITY	4-H/Ae ...	Awarded	06/26/2008	$454,545
CSREES	2008-84345	KANSAS STATE UNIVERSITY	4-H/Army ...	Awarded	06/24/2008	$13,882,176

My Business Services

Coming Soon! My Services Summary

This section will summarize all your services in one location. With just one click you will be able to jump directly to the service status you wish to view. **Below is an example of what you can expect in our future release!**

My Services

NSF Grant Application Status: **15 total applications**
Pending (4) | Awarded (3) | Withdrawn (4)

CSREES Grant Application Status: **27 total applications**
Received (4) | Pending (4) | Recommended (4) | Awarded (3) |
Declined (4) | Withdrawn (4) | Returned (4)

My Profile

- View My Profile
- Add Agency Activations

Events

April 20 - 21, 2009
SRA Ohio Chapter Meeting
Partnership meeting

April 26 - 28, 2009
NCURA Region II Meeting
Partnership meeting

April 26 - 29, 2009
NCURA Region V Meeting
Partnership meeting

View All Events

Promo

Why should I Use Research.gov?

Headlines

New Evidence From NSF-funded ANDRILL Demonstrates Climate Warming Affects Antarctic Ice Sheet Stability

Cathedral Fire, Wilson's Promontory, Victoria

4-H National Headquarters and U.S. Fish and Wildlife Service Award National Wildlife Stewards

View All Headlines

My Weather

Weather service is not available. Try later.

Enter Your Zip:

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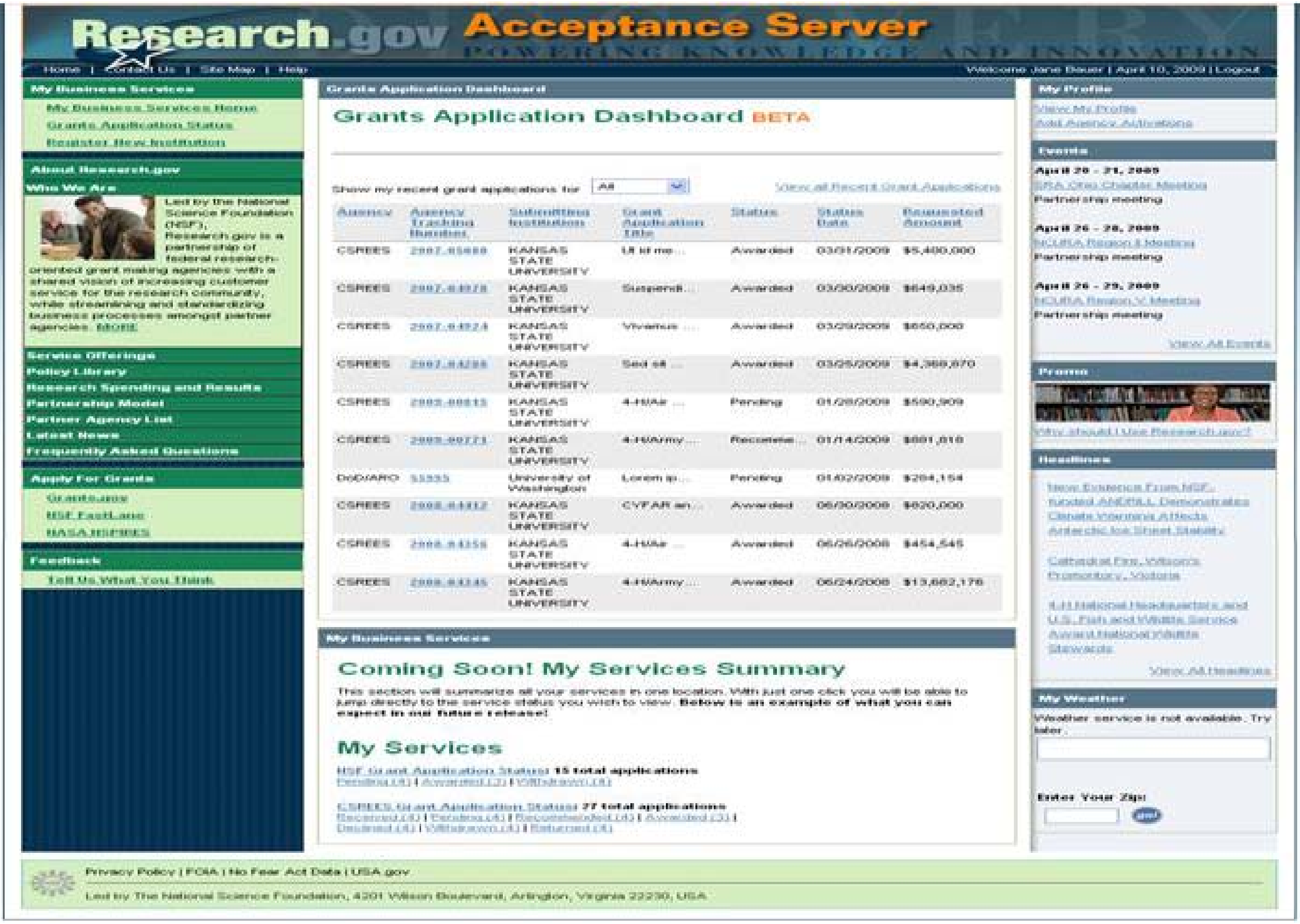
Next time…

- User
  - “Launches” from home institution
  - Arrives at Research.gov
  - Is not asked for NSF ID and password

Next time the user arrives ready to work!



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Home | Contact Us | Site Map | Help
Welcome Jane Bauer | April 10, 2009 | Logout

My Business Services

- My Business Services Home
- Grants Application Status
- Register New Institution

About Research.gov

Who We Are

Led by the National Science Foundation (NSF), Research.gov is a partnership of federal research-oriented grant making agencies with a shared vision of increasing customer service for the research community, while streamlining and standardizing business processes amongst partner agencies. MORE

- Service Offerings
- Policy Library
- Research Spending and Results
- Partnership Model
- Partner Agency List
- Latest News
- Frequently Asked Questions

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CSREES	2007.64924	KANSAS STATE UNIVERSITY	Vivamus ...	Awarded	03/29/2009	$650,000
CSREES	2007.64298	KANSAS STATE UNIVERSITY	Sed sit ...	Awarded	03/25/2009	$4,369,670
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DoD/ARO	55555	University of Washington	Lorem ip...	Pending	01/02/2009	$284,154
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CSREES	2008.44345	KANSAS STATE UNIVERSITY	4-H/Army ...	Awarded	06/24/2008	$13,682,176

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My Services

NSF Grant Application Status: **15 total applications**
Pending (4) | Awarded (2) | Withdrawn (4)

CSREES Grant Application Status: **77 total applications**
Received (4) | Pending (4) | Recommended (4) | Awarded (3) |
Declined (4) | Withdrawn (4) | Returned (4)

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- View My Profile
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April 20 - 21, 2009
SRA Ohio Chapter Meeting
Partnership meeting

April 26 - 28, 2009
NCURA Region II Meeting
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NCURA Region V Meeting
Partnership meeting

View All Events

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Why should I Use Research.gov?

Headlines

- New Evidence From NSF-funded ANDRILL Demonstrates Climate Warming Affects Antarctic Ice Sheet Stability
- Cathedral Fire, Wilson's Promontory, Victoria
- 4-H National Headquarters and U.S. Fish and Wildlife Service Award National Wildlife Stewards

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My Weather

Weather service is not available. Try later.

Enter Your Zip:

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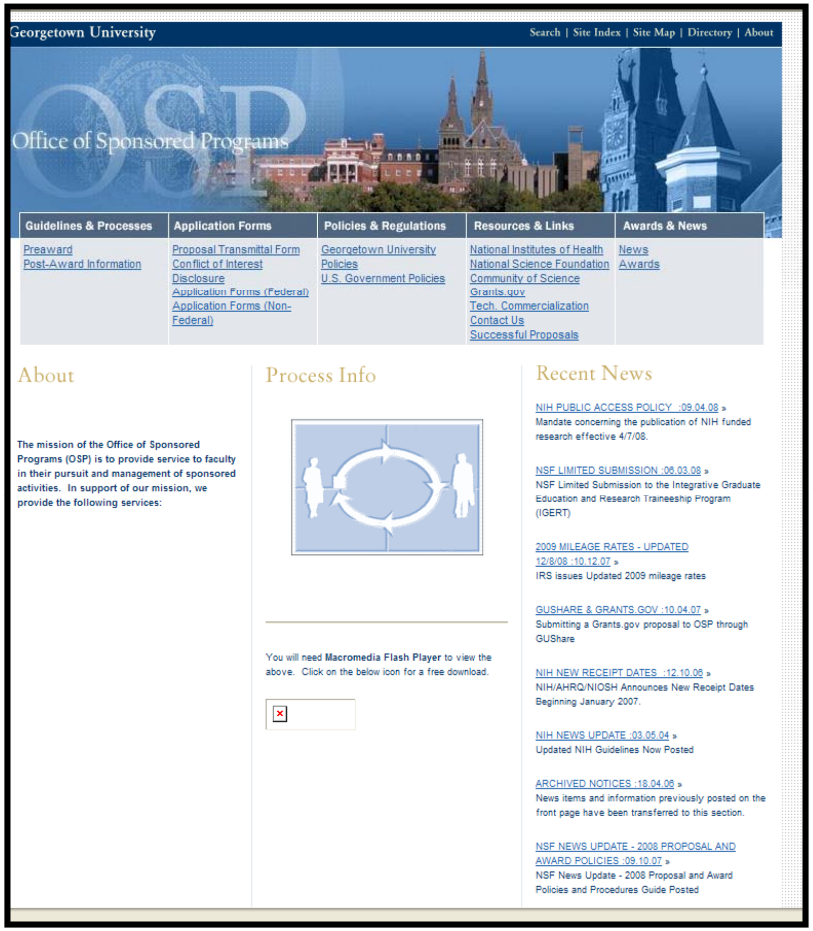
What the institutions need to do…

- Five pilot institutions (“beta”)
  - Tech lead: RL “Bob” Morgan U of Washington
  - Ironing out kinks at their end to share experience with others
- Unique user names (pilot institutions have this)
- “Identity proofing”
  - LOA1 (InCommon Bronze)
    - You are who you say you are… vetted by Sponsored Projects Officer
  - LOA2 (InCommon Silver)
    - You will have provided at least the INS (I-9) level of identification of two forms of government-issued ids
    - Anyone hired prior to 1986 may not have done this
- Technical implementation
  - Production “Shib”
  - Login services
  - “application handshakes”
- Sponsored Research Office collaboration
  - “Front end”/”Front door” access
  - User education
  - Ongoing$_{su}$ pport

A real life example… One University
Two Sponsored Research Offices; Two Administrations

Main Campus



Georgetown University

Search | Site Index | Site Map | Directory | About

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Guidelines & Processes
Preaward
Post-Award Information

Application Forms
Proposal Transmittal Form
Conflict of Interest Disclosure
Application Forms (Federal)
Application Forms (Non-Federal)

Policies & Regulations
Georgetown University Policies
U.S. Government Policies

Resources & Links
National Institutes of Health
National Science Foundation
Community of Science
Grants.gov
Tech. Commercialization
Contact Us
Successful Proposals

Awards & News
News
Awards

About

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Process Info

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Recent News

NIH PUBLIC ACCESS POLICY :09.04.08 »
Mandate concerning the publication of NIH funded research effective 4/7/08.

NSF LIMITED SUBMISSION :06.03.08 »
NSF Limited Submission to the Integrative Graduate Education and Research Traineeship Program (IGERT)

2009 MILEAGE RATES - UPDATED 12/8/08 :10.12.07 »
IRS issues Updated 2009 mileage rates

GUSHARE & GRANTS.GOV :10.04.07 »
Submitting a Grants.gov proposal to OSP through GUShare

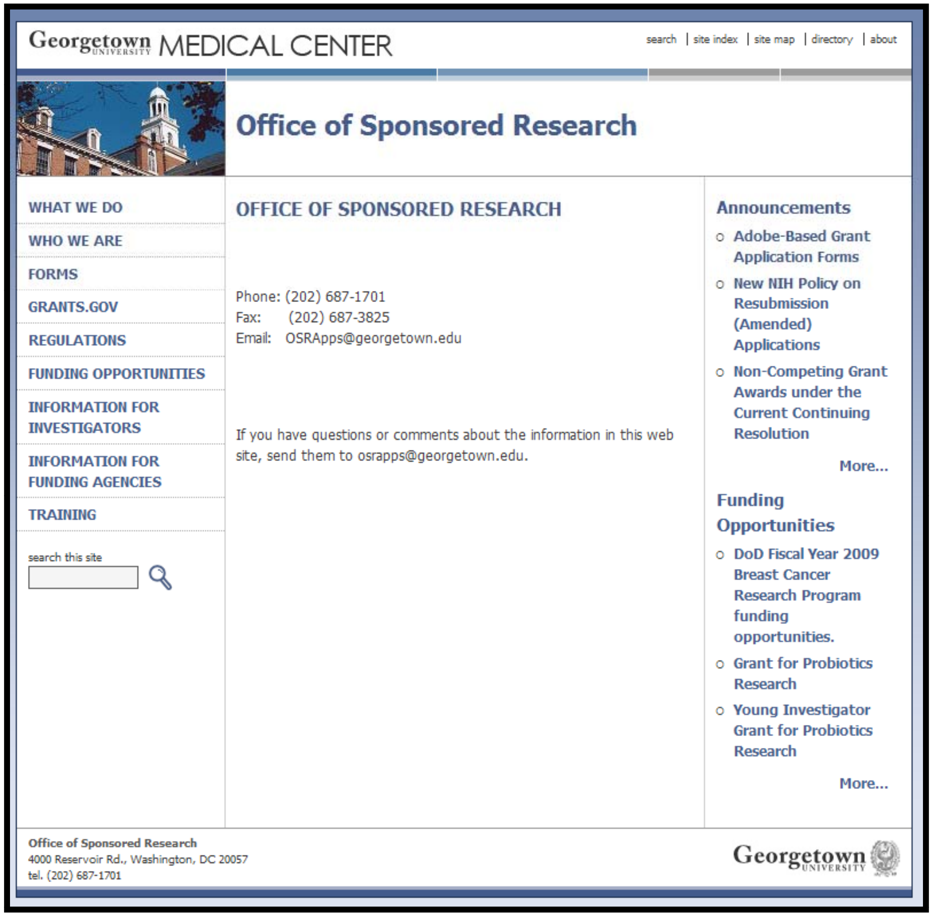
NIH NEW RECEIPT DATES :12.10.06 »
NIH/AHRQ/NIOSH Announces New Receipt Dates Beginning January 2007.

NIH NEWS UPDATE :03.05.04 »
Updated NIH Guidelines Now Posted

ARCHIVED NOTICES :18.04.06 »
News items and information previously posted on the front page have been transferred to this section.

NSF NEWS UPDATE - 2008 PROPOSAL AND AWARD POLICIES :09.10.07 »
NSF News Update - 2008 Proposal and Award Policies and Procedures Guide Posted

Medical Center



Georgetown University MEDICAL CENTER

search | site index | site map | directory | about

Office of Sponsored Research

WHAT WE DO
WHO WE ARE
FORMS
GRANTS.GOV
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OFFICE OF SPONSORED RESEARCH

Phone: (202) 687-1701
Fax: (202) 687-3825
Email: OSRApps@georgetown.edu

If you have questions or comments about the information in this web site, send them to osrapps@georgetown.edu.

Announcements

- Adobe-Based Grant Application Forms
- New NIH Policy on Resubmission (Amended) Applications
- Non-Competing Grant Awards under the Current Continuing Resolution

More...

Funding Opportunities

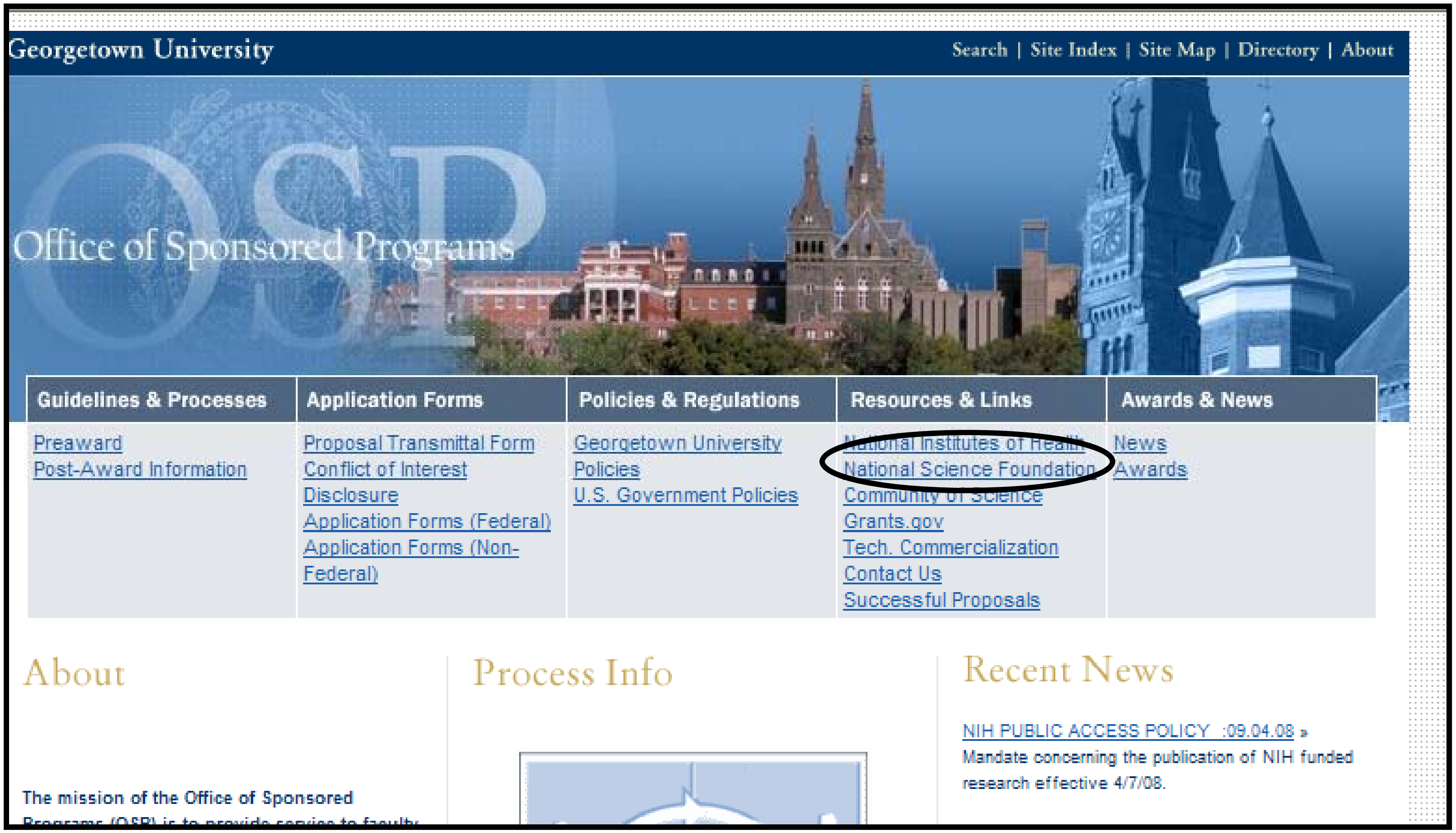
- DoD Fiscal Year 2009 Breast Cancer Research Program funding opportunities.
- Grant for Probiotics Research
- Young Investigator Grant for Probiotics Research

More...

Office of Sponsored Research
4000 Reservoir Rd., Washington, DC 20057
tel. (202) 687-1701

Georgetown University

Already a resource…
[addinga link to Research. gov]



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Search | Site Index | Site Map | Directory | About

Office of Sponsored Programs

Guidelines & Processes	Application Forms	Policies & Regulations	Resources & Links	Awards & News
Preaward Post-Award Information	Proposal Transmittal Form Conflict of Interest Disclosure Application Forms (Federal) Application Forms (Non-Federal)	Georgetown University Policies U.S. Government Policies	National Institutes of Health National Science Foundation Community of Science Grants.gov Tech. Commercialization Contact Us Successful Proposals	News Awards

About

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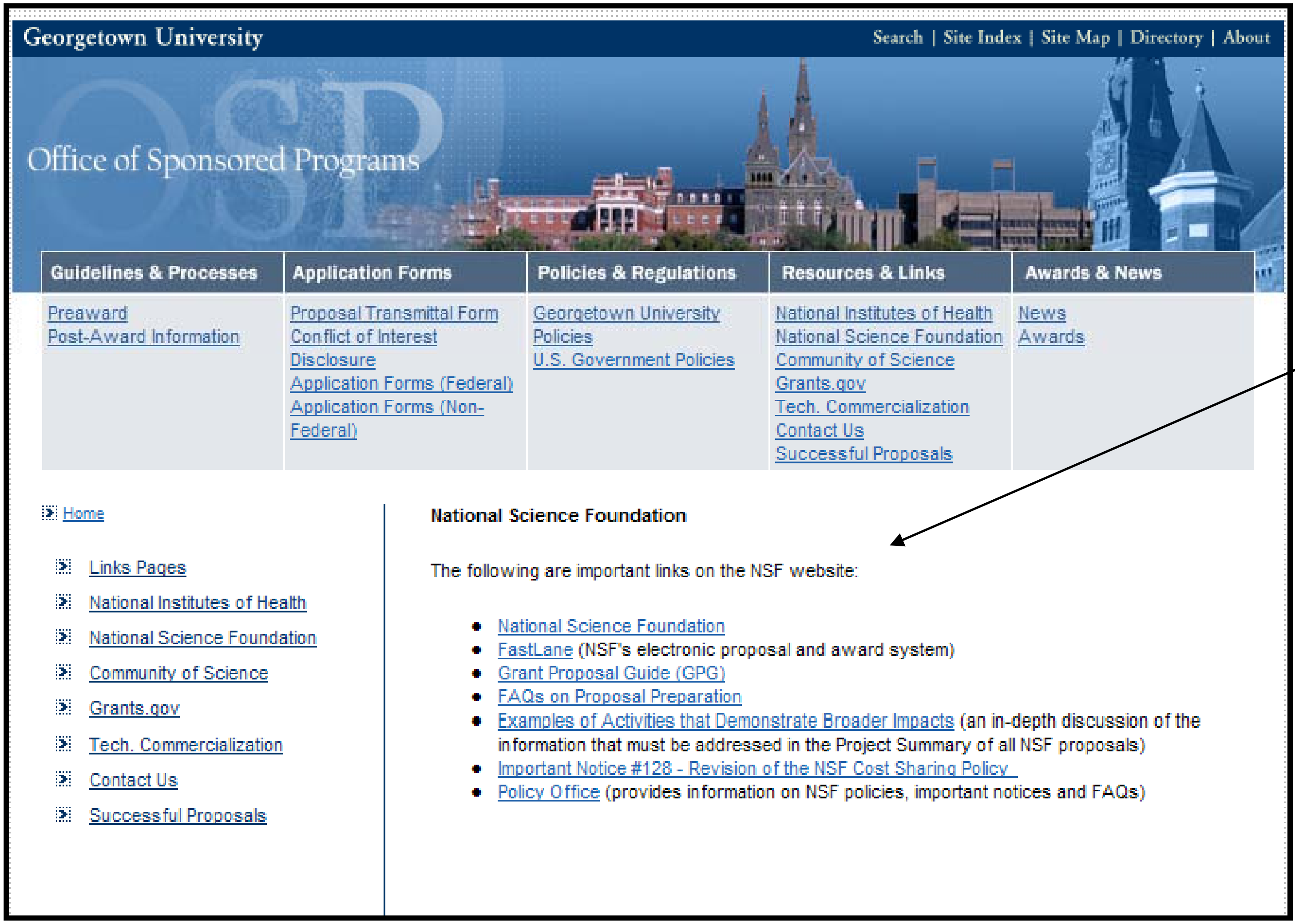
Process Info

Recent News

NIH PUBLIC ACCESS POLICY :09.04.08 »
Mandate concerning the publication of NIH funded research effective 4/7/08.

Example Change: requires collaboration with SRO, IT and, in this case, a contract web developer



National Science Foundation

The following are important links on the NSF website:

- National Science Foundation
- FastLane (NSF's electronic proposal and award system)
- Grant Proposal Guide (GPG)
- FAQs on Proposal Preparation
- Examples of Activities that Demonstrate Broader Impacts (an in-depth discussion of the information that must be addressed in the Project Summary of all NSF proposals)
- Important Notice #128 - Revision of the NSF Cost Sharing Policy
- Policy Office (provides information on NSF policies, important notices and FAQs)

Add link for login with GU credentials and link to NSF

OR

Pass already authenticated GU credentials to NSF

Note: this authentication may also occur off of a special login page initially.

What’s happening in the research community and with federal eAuth?

“InCommon-research-admin” Pilot

- Goal: intended to accelerate the deployment of federated identity and associated attributes in the research management community.
- Participants
  - University: IT organizations and Sponsored Research Offices
  - Federal Agencies: NIH and NSF, with endorsement of GSA eAuthentication initiative
  - National Organizations: the FDP and InCommon
- Objectives:
  - Inform each other - The diverse communities engaged bring different interests, expertise, terminologies, and challenges that they want to address.
  - Improve current business processes by leveraging the emerging federated identity infrastructure – The primary early focus of the activity is to utilize federations such as InCommon to improve the user experience, provide better security, and protect privacy.
  - Develop reengineered business processes to take advantage of the new technologies Over the course of the work, we hope to better understand how to make other fundamental improvements to the activities of the research administration community through the use of the identity and access infrastructure.

InCommon-research-admin Objectives

- Work with pilot institutions to anchor and extend the use of existing InCommon infrastructure within the research administration community.
  - initial application base is a set of LOA 1 applications (grant status checks, genome db access, etc.)
  - expanded and complement with better defined strategies for cutover, user support, dissemination, etc.
- Develop strategies for campuses to implement InCommon Silver.
  - LOA 2
  - Leverage real business requirements to improve levels of security and ease of use.
- Use role-based access controls to complement identity based controls.
  - Pilot distributed but coordinated management via federated attributes.
- Understand how the InCommon-research-admin activities relate to other important R&E activities for the promotion of leverage and consistency of practice across the research community.

InCommon-research-admin Expected Outcomes

- A “researchPerson” definition similar to the existing “eduPerson”
- Experiences to share with
  - Other federal agencies
  - Other institutions

National Institutes of Health

- Creating a federation for inside NIH
- All LOA 1
- Enabling lots of applications
  - But, NOT grants management
  - 5-6 in production now
  - National Library of Medicine is coming on soon
- Soon will have 100,000 users in 9,500 institutions worldwide
- Piloting LOA 2 for grants management$_{W}$ ith InCommon

What’s happening with Federal eAuth?

- 2002: government-wide eAuthentication begun
  - A few early adopters
- March 2009: eAuth PMO disbanded
  - Non viable business model
  - Sunset meeting held January 2009
- Responsibility moving from Federal Acquisition Service to Office of Government Policy
  - Agencies can:
    - Buy services off GSA schedule
    - Make their own alliances with other agencies and organizations
  - Move toward more industry-based certifications of products and technologies

What’s happening with Federal eAuth?

- GSA
  - New Leadership: Peter Alterman, Ph.D., Deputy Associate Administrator for Technology Strategy; Office of Governmentwide Policy, GSA
    - Led NIH initiative (toward higher-ed compatibilities)
    - Advocate for university methodologies for many years
  - Recommending using technologies used by InCommon as their new model as of 11/2008

- CIO Council/New Administration
  - Federal Identity, Credential, and Access Management (***ICAM***) Working Groups
    - Citizen services
    - F2F Working group

- http://www.cio.gov/eauthentication/

Background and Supplemental Information

Shibboleth*

- “The term originates from the Hebrew word ‘shibboleth’ (שיבולת), which literally means the part of a plant containing grains, such as an ear of corn or a stalk of grain[3] or, in different contexts, ‘stream, torrent’[4][5] It derives from an account in the Hebrew Bible, in which pronunciation of this word was used to distinguish members of a group (the Ephraimites), whose dialect lacked a /ʃ/ sound (from members of a group (the Gileadites) whose dialect did include such a sound.
- “In the Book of Judges, chapter 12, after the inhabitants of Gilead inflicted a military defeat upon the tribe of Ephraim (around 1370–1070 BC), the surviving Ephraimites tried to cross the Jordan River back into their home territory and the Gileadites secured the river's fords to stop them. In order to identify and kill these disguised refugees, the Gileadites put each refugee to a simple test:
- “ ‘Gilead then cut Ephraim off from the fords of the Jordan, and whenever Ephraimite fugitives said, *Let me cross*, the men of Gilead would ask, *Are you an Ephraimite?* If he said, *No,* they then said, *Very well, say Shibboleth.* If anyone said, *Sibboleth,* because he could not pronounce it, then they would seize him and kill him by the fords of the Jordan. Forty-two thousand Ephraimites fell on this occasion.’ ”– *Judges 12:5-6, NJB*

* http://en.wikipedia.org/wiki/Shibboleth

Security Assertion Markup Language*

Security Assertion Markup Language (**SAML**) is an XML-based standard for exchanging authentication and authorization data between security domains, that is, between an *identity provider* (a producer of assertions) and a *service provider* (a consumer of assertions). SAML is a product of the OASIS Security Services Technical Committee.

The single most important problem that SAML is trying to solve is the *Web Browser Single Sign-On* (SSO) problem. Single sign-on solutions are abundant at the intranet level (using cookies, for example) but extending these solutions beyond the intranet has been problematic and has led to the proliferation of non-interoperable proprietary technologies. SAML has become the definitive standard underlying many web Single Sign-On solutions in the enterprise identity management problem space.

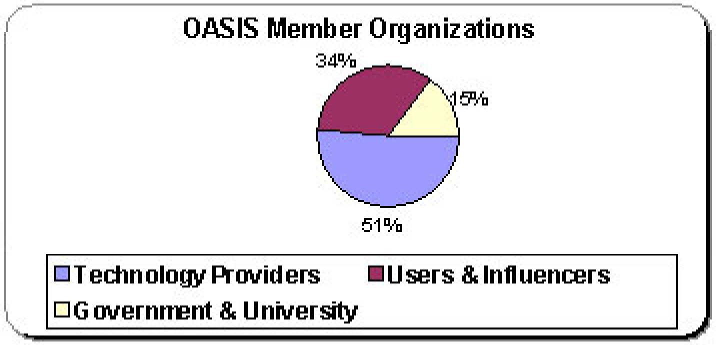
SAML assumes the *principal* (often a user) has enrolled with at least one identity provider. This identity provider is expected to provide local authentication services to the principal. However, SAML does not specify the implementation of these local services; indeed, SAML does not care how local authentication services are implemented (although individual service providers most certainly will).

Thus a service provider relies on the identity provider to identify the principal. At the principal's request, the identity provider passes a SAML assertion to the service provider. On the basis of this assertion, the service provider makes an access control decision.

*http://en.wikipedia.org/wiki/SAML

OASIS: Organization for the Advancement of Structured Information Standards

- OASIS (Organization for the Advancement of Structured Information Standards) is a not-for-profit consortium that drives the development, convergence and adoption of open standards for the global information society. The consortium produces more Web services standards than any other organization along with standards for security, e-business, and standardization efforts in the public sector and for application-specific markets. Founded in 1993, OASIS has more than 5,000 participants representing over 600 organizations and individual members in 100 countries.
- Members of note: NIST, NOAA (weather), Internet2, NCSA, etc.
- http://www.oasis-open.org/who/



OASIS

Advancing open standards for the information society

eduPerson Core Attributes

- eduPersonScopedAffiliation – does this institution subscribe to the service in question? e.g. member@netherhall.cambs.sch.uk, or student@keele.ac.uk
  - **student** (learner), **staff** (non-teaching staff), **faculty** (teaching staff), **employee** (all staff), **member** (comprises all the previous categories), **affiliate** (relationship short of full member), **alum** (ex pupil/alumnus)
- eduPersonTargetedID – persistent opaque identifier – can provide personalisation & usage monitoring across sessions
- eduPersonPrincipalName – the 'NetID' of the user, e.g. user@school.lea.sch.uk – a persistent identifier across different services
- eduPersonEntitlement enables an institution to assert that a user satisfies an additional set of specific conditions that apply for access to a particular resource e.g. "entitled to access financial accounts"

- Where extra attributes are required, the federation has a process for the addition of subsidiary attributes, but...

For most applications a combination of eduPersonScopedAffiliation and eduPersonTargetedID will be sufficient

Resources

- http://www.incommonfederation.org/
- http://www.incommonfederation.org/assurance/
- http://www.Internet2.edu
- http://shibboleth.internet2.edu/
- http://middleware.internet2.edu/eduperson/
- http://csrc.nist.gov/publications/PubsSPs.html

International Activities

- http://www.terena.org/activities/refeds/
  - A summary of discussions among R&E networks, including a survey of national efforts
- http://www.jisclegal.ac.uk/access/
  - Excellent policy analytics, especially around international issues of privacy, peering, and attributes
- http://ec.europa.eu/idabc/
  - TransEuropean activities in IdM for use among citizens, governments, and businesses

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- Ken Klingenstein, InCommon
- Ann West, Internet2
- John Chapman, Project Adviser, Technical Policy and Standards. “The UK Access Management Federation for education and research”. Becta. http://www.becta.org.uk

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Questions?